THE

UNITED SERVICE.

EDITED BY L. R. HAMERSLY.

MARCH 1895.

THE SUPPLY OF THE ARMIES OF FREDERICK THE GREAT AND NAPOLEON.[1]

TRANSLATED FROM THE FRENCH BY HENRY G. SHARPE, CAPTAIN AND C.S., U.S.A.

INTRODUCTION.

FROM the very earliest times, among the Greeks and Romans, the questions of administration and of subsistence of the troops were always considered as exceedingly important.

Xenophon and Titus Livy inform us that with both those nations the most important of a general's duties was to provide nourishment for his men.

Napoleon I. devoted but little attention to the questions of supply in several campaigns, particularly the expedition in Portugal. On the other hand, Frederick always studied the means of subsisting his troops and subordinated his operations to the resources of provisions.

General Jomini, aide-de-camp of the Emperor of Russia, in his "Treatise on Grand Military Operations," approves the system and the plans of the King of Prussia, based on the most careful calculations of the marches of the bakery column.

"After all, if Napoleon's successes have proved that the exact calculations for the bakery column were formerly too niggardly, his

[1] By Ch. Aubry, Officier d'Administration, Chef des Bureaux de la Direction du Service administratif des Corps de Troupe du Gouvernement militaire de Paris.

disasters have also proved that he made too light of them, and that, in certain limits and particular countries, they became indispensable."

For want of resources, Napoleon, by throwing himself upon the rear of the enemy, often, it is true, provided for the wants of his army.

"I have often heard him say that in his first campaigns the enemy's army was always so well provided, that, when he had difficulty to supply his own, he only had to throw himself upon the rear of the enemy, where he was sure to find everything in abundance." (Jomini, "Précis de l'Art de la Guerre.")

Frederick knew how to use the countries traversed by his army without ruining them; he did not permit movements of his troops without magazines, and spared the countries occupied more through self-interest than on account of humanity.

Napoleon, on the other hand, wishing to move rapidly and to dispense with magazines, desiring to suppress the impedimenta, permitted in many cases his troops to live upon the conquered country, which gave rise to the marauding, desertion, and lack of organization which prevailed in his last campaigns, for it must be confessed, in Russia, after the Beresina, in Germany, after Leipsic, the lack of provisions brought on the confusion in our army; and it was, moreover, on account of the lack of provisions some time before that the army of Marshal Soult could not hold Portugal, and that of Massena remain before the lines of Torres-Vedras.

Colonel Von der Goltz states that Napoleon always took the necessary measures for the support of his army; it is sufficient to consult Thiers, Jomini, and the "Memoirs of the Comte de Ségur" to be of a different opinion. For Napoleon concerned himself especially to live upon the country at the risk of exhausting it, of antagonizing the inhabitants and rendering them implacable enemies. That is what so many German and Italian authors complain of, and it must be admitted that the French armies exhausted Germany from 1805 to 1813 by means of requisitions, and that, moreover, foresight was not always characteristic of the commanders of the French troops.

The questions of administration, organization, and of subsistence, which have never been neglected by the great captains, are to-day considered as of the highest importance by the general officers of all the great European powers; besides, could it be otherwise when the powers have three million combatants, when five hundred thousand men can be thrown by the chance of war in a territory of small area, equal in extent to that of a department. In all the glorious epochs, ancient or modern, the most eminent commanders were most solicitous for the wants of their men, their companions, as Cæsar called them. These illustrious captains knew that they could ask nothing of their troops if beforehand they had not provided them with the necessaries. So

we find they were constantly occupied with that matter. ("Tactique des Ravitaillements," par le Général Lewal).

It is not possible, then, to devote too much study to questions of this character, which should occupy a prominent place in the attention of a general-in-chief. Now, to understand them thoroughly, it is necessary to refer to the origin of the great modern armies and gather the elements of the systems employed for the supply of the armies by such illustrious administrators as Daru, Deniée, Cancrin, etc.

In this study I intend to give a short account of the different methods employed by these great soldiers, Frederick and Napoleon, to provide for the subsistence of their troops, and, by assuring their comfort, to preserve discipline and thus prepare the victory.

CHAPTER I.

SECTION I.

OPINION OF FREDERICK THE GREAT ON THE QUESTION OF ADMINISTRATION.

FREDERICK THE GREAT, whose troops were of unquestionable valor and discipline, was unremitting in his efforts to perfect them, and did not neglect the smallest details of organization and administration, He said of them,—

"With such troops one could conquer the entire world, if victories were not as fatal to them as their enemies; for you could undertake anything with them provided you had provisions."

Such, then, was the chief solicitude of the illustrious captain who wrote,—

"A general who does not provide himself with enough provisions, even if he were greater than Cæsar, would not be a hero very long."

"The charge of such matters is intrusted to an upright man, discreet and able. Sufficient flour is provided for the entire campaign, and the army even transports with it three weeks' or a month's supply."

In the foregoing lines the King of Prussia gives the gist of his entire system of organization. He required an upright commissary, one who was discreet and able; magazines, convoys, rations in the haversack. By such means he maintained his troops in perfect condition, had no deserters or marauders, and consequently was victorious.

Coligny said, "When it is desired to build up an army it is necessary to commence with the stomach." Frederick was likewise of that opinion. "You will see," he wrote to Prince Henry, "that the soldier neither lacks bread nor meat, and where subjected to unusual hardships you will issue him extra rations."

He gave unceasing attention to all kinds of wants of the troops, and required his officers and commissaries to provide even brandy or beer for them.

SECTION II.

HIS SYSTEM OF SUPPLY.

Magazines.

The magazines should be within reach of the places where it is expected to operate. During a movement the principal magazines should be in rear and always in a fortified city. It is necessary, in order to enable the troops to move easily, not to place the principal magazine in advance of the army and to operate by échelons in order to avoid a total loss.

The commissary should sign and make his own contracts (not having resource to contractors except in case of great necessity), to form his magazines early and before the commencement of the campaign, so as not to be disturbed by the enemy.

Such are the principles of Frederick concerning the formation of magazines.

Convoys.

Let us now see how the convoys of the Prussian army were composed.

The regiments had five days' bread in their wagons; the commissariat had twenty-five days' supply, or a month in all.

The wagons were drawn by horses and guided by special convoys, who were also charged with the transport of the artillery ammunition. It was a kind of wagon-train very well organized. Frederick was not willing to place his convoys in charge of non-military drivers. He was of the opinion that it was to his interest to strongly organize the riders in charge of the carts (as he called them), so as not to lose the horses, and, particularly, not the flour and the caissons.

The army had iron ovens, and when halted baked bread.

"In all expeditions it is necessary to have ten days' bread and biscuit. Biscuits are admirable, but our men eat them in soup and do not know how to use them." (Frederick.)

In some campaigns the soldiers received hand-mills (this custom was later adopted by Napoleon when entering Russia); they were obliged to grind the corn they found, and then turned in the flour to the commissariat and received bread in exchange. Mixed with the flour from the magazines it enabled a saving to be made of the resources from the rear and diminished the importance of the convoys.

Protection of Magazines and Convoys.

Both in fortified and open towns the magazines were located in a safe place, and whenever possible in cellars, so as to avoid any chance

of fire. In Bohemia, the Empress Maria Theresa set on fire a town in which Frederick had accumulated supplies, but as the stores were in vaulted cellars, nothing was lost except some wagons.

The depots of supplies were, in accordance with the orders of the king, to be surrounded with earthworks, palisades, etc.; a garrison was to be maintained there, intended to serve as escort for the daily supply of stores sent to the army.

The king, likewise, prescribed the methods for escorting the convoys, for defending them when passing through a defile; he added that even superfluous precautions should be employed to assure the safety of the convoys, for, said he, if an army is conquered by famine it is worse than if it loses a battle.

Soldiers' Ration.

The Prussian soldier was by law allowed two pounds of bread a day, and two pounds of meat a week; he purchased anything additional from the sutlers who accompanied the army. The latter were allowed to pillage the countries abandoned by their inhabitants, but in every instance marauding was severely punished.

The King of Prussia was unwilling that a distribution should be made, except in case of absolute necessity, of the meat from the oxen taken from the teams, as such meat was unwholesome.

Requisitions.

The Thirty Years' War had exhausted Germany. Frederick, on the other hand, was unwilling to lay waste the countries occupied; he only made requisitions when obliged to do so, and preferred to have magazines follow after him. He made use of the resources of the districts traversed, but spared the countries so far as not to alienate them.

The Importance of the Convoys of the Prussian Army.

At the siege of Olmutz, Frederick's convoys numbered five thousand wagons. When the army of the Austrian General Daun compelled Marshal Keith to raise the siege, the latter took such measures that all the *matériel*, the provisions, and the sick were moved back upon the Krenau—the place of assemblage—in the very best order, and without serious losses. The retreat of the King of Prussia, notwithstanding his immense convoys and the nature of the country, was made with the greatest precision.

Forages.

Dry forage was seized or bought from the inhabitants, and green forage was gathered from the fields. The cavalry corps and the infantry insured the collection of the latter, but the king ordered them to spare the crops and not to destroy them uselessly. Some troops

were ordered to harvest the crops, and to bring back to camp the stores they collected. All this was done according to system, and the greatest precautions were taken when near the enemy.

In conclusion, Frederick, by his wise arrangements, understood always how to provide for his armies as much by means of the resources of his magazines as by those of the countries occupied. In using the resources of the districts it was not for the purpose of obtaining greater freedom of movement, but his purpose especially was to starve his adversary and to nourish his troops during a certain time without paying as much as in his own country. "He wished to save his money, to spare his war treasury, which was small, and thus be able to continue the war a longer time. In reality, the supplies collected by means of the taxes were large, when we consider the small size of the armies and the trifling sums required to support them. There were times when the army, perhaps, lived without a crown coming from the treasury or a sack of flour crossing the frontier." (Colonel von der Goltz.)

SECTION III.

THE FRENCH ARMIES IN GERMANY.

While the armies of Frederick the Great were so well supplied, what had become of the French army?[2]

Jomini informs us that it only lived by pillaging, and that that was the cause which led the English to break the agreement of Closter-Severn.

Tempelhof accuses the French generals of imposing very heavy contributions, of not placing any restraint on the pillaging of those whose duty it was to attend to the supplies, and of permitting their army to be in want in the midst of the richest and most fertile countries; the paltry rations the army received were composed, said he, only of the articles which could not be sold.

"This disorder had sad results. Insubordination at its height, the soldier, warranted by example, committed devastation everywhere. The efforts of some commanders were useless, for, when they wished to punish, the soldier escaped punishment by deserting." (Jomini, "Traité des Grandes Opérations militaires.")

Besides, in these campaigns, the magazines of the French army were often abandoned to the enemy, whose objective was to seize them. Frederick said on this subject,—

"Famine will conquer a man more surely than the courage of his adversary; but, as the seizure of a convoy or the loss of a magazine

[2] Frederick has praised in his writings M. de Séchelles, comptroller-general of finance, intendant of the French army in Bohemia. This official was, in his opinion, the type of military administrators. Unfortunately, the French army had very few possessing the same ability.

does not end the war, and battles must decide it, it is necessary to employ both of these means to succeed."

In Silesia, he had all the forage and provisions removed from the vicinity of Königgrätz, so as to prevent Marshal Daun from operating in that part of the province. What he did in that campaign he often repeated, thinking, with reason, that the enemy could do nothing without magazines.

SECTION IV.

OPINION OF GENERAL JOMINI.

The art of subsisting a large army, in an enemy's country particularly, is one of the most difficult, General Jomini declares in his "Précis de l'Art de la Guerre." "It is often a more difficult task than to direct certain operations." (General Foy.)

"A general should know how to turn to advantage all the resources existing in the country which he invades; he should make use of the authorities, when they remain there, to impose uniform and lawful requisitions, which he will cause to be paid promptly if he has the means; when the authorities do not remain, he should appoint provisional ones, composed of well-known men and invested with extraordinary powers. They will have the supplies requisitioned collected in the safest places and the most favorable for the movements of the army, and in the vicinity of the principal lines of operations. In order to economize the supplies, as many of the troops as possible will be quartered in the towns and villages, subject to indemnification for the inhabitants for additional burden that will result. The army, in addition to the provisions and forage, will have parks of auxiliary wagons furnished by the country, so that the supplies can be delivered to it wherever it has halted." (Jomini.)

From this statement it can be seen that the ideas of General Jomini were applied in the last wars by the German armies, and that the principles of that illustrious strategist are those adopted now in the European armies.

Jomini recommends the supply of biscuit, the formation of reserve magazines by means of the resources of the occupied country, collected either by purchases or by requisition; finally, that the magazines should be in "échelon" on the various lines of communication, in order to facilitate the supply of the wings and the greatest extension of the system of requisitions.

Moreover, he advises placing the magazines under shelter from the expeditions of the enemy, transport to accompany the troops in poor or exhausted countries, a complete organization of the requisitioned convoys, and that the soldiers should carry rations (of biscuit, rice, and even flour).

General Jomini thinks that one can hardly make use of rivers,

canals, etc., except in friendly or allied territory; he estimates that it will be necessary to have the regiments followed by convoys of cattle purchased outside the zone of the marches of the army. The present regulations relating to this method of supply were thus conceived.

Jomini estimates that, lacking bread or biscuits, the ration of meat should be increased, and that is precisely what our instructions concerning issues in the field contemplate.

One can obtain a clear idea by comparing these opinions with the principles adopted since by the French and German armies; most of them have been adopted or are sanctioned in these armies.

Frederick, and Jomini, also, have then established the foundations of systems that have been modified, elaborated, adapted to circumstances, to the countries, and to the number of the troops, but which nevertheless are none the less admirable.

CHAPTER II.

THE FRENCH REPUBLIC—SUPPLY OF THE ARMIES—THEIR WANT—FINANCIAL DISTRESS.

In 1792 the organization of the French army left much to be desired, and notwithstanding the former efforts of the Comte de Saint-Germain, under Louis XVI., and of Dubois Crancé,[3] under the Convention, the administration was almost lacking. Having attained the ministry, the latter was the promoter of the reorganization of the army in 1793.

In 1791, however, attention had already commenced to be paid to the question of regulating the administration of the troops by creating, in accordance with the report of the Vicomte de Noailles, the general bodies, those of the bakery, of forage, hospitals, camp, equipment, wood, and light for the troops and the guard. M. de Narbonne did nothing or nearly nothing; in 1792, the armies were in need of everything; the fortified towns had no supplies; biscuits even, as well as money, were lacking.

The army of the Argonne, which gained the celebrated victory of Valmy, was composed of men badly equipped, poorly clothed. The pay was in arrears and paid by depreciated money; the arms were insufficient; the uniforms different, worn, torn, often in shreds; many of the men, being without shoes, tied bunches of straw about their feet as a substitute for shoes; as to provisions, they were distributed only very irregularly. The men were often three days without bread.

[3] Dubois de Crancé was commissary in the army of the Alps and, later, minister of war.

It was after Valmy that Dumouriez said to his troops who were complaining,—

"Look at the Prussians, have they not more to complain about than you? They eat their dead horses and you have flour. Make some cakes, liberty will sweeten them."

The Prussians were, in fact, in the greatest want and forced to pillage the villages, farms, and vineyards. The bad food and green grapes caused bowel complaints. The army of Brunswick was decimated in consequence.

In 1793, in spite of the attainments of Minister Pache, a former commissary-general of subsistence, matters were no better.

"During the Revolution necessity made light of magazines; large armies invading Belgium and Germany without supplies lived sometimes on the inhabitants, sometimes by requisitions imposed upon the country, finally by marauding and pillaging." (Jomini.)

After the battle of Jemmapes, Dumouriez, who had just entered Mons, provided for his supplies by making use of the resources which Belgium offered him.

"An independent nation, animated with hate for Austria, daughter of our Revolution, condemned to live or die with us, and obliged, by its weakness even, to become the granary, the arsenal, the recruiting field, and the field of battle for our armies of the North, seemed very properly, to Dumouriez, more useful to his country than a conquered province, subdued, oppressed, and ravaged by the commissaries of the Convention and by the propaganda of the Jacobins. He treated the Belgians, from the first, as brothers; the commissaries and the Jacobins wished to treat them as a conquered people." (De Lamartine.)

Thanks to his tact and his ability as an organizer, his army was supplied by the Belgians and did not suffer for some time.

But in many instances the soldiers of our first republic lacked the barest necessities.

If the battle of Wattignies was not disastrous for the Austrian General Clairfayt, it was because Maubeuge's troops, decimated by famine and sickness, were not able to assist their brothers in arms commanded by Jourdan and Carnot. Notwithstanding the extenuating circumstances resulting from the bad condition of the troops and the lack of orders, the Convention laid the blame upon General Chancel, who was executed.

At Fleurus the French troops still lacked provisions; it was necessary some days before for Generals Charbonnier and Desjardins, who had crossed the Sambre, to detach Kléber and Marceau with their corps to go and supply the army from the French side of the river.

"Attacked by the Austrians during this unwise separation, the French were thrown into the river, and owed their safety only to the

return of Kléber and the valor of Bernadotte, who returned upon hearing the sound of the cannon." (De Lamartine.)

At Wattignies as at Fleurus the full fruits of the victory were lost by insufficient means of subsistence.

No real administration existed in the first armies of the republic, or at least it was entirely inadequate to provide for the different necessities. However, upon the initiative of Dubois de Crancé, the commissariat was reorganized; but its working at the outset was not satisfactory. Among the commissaries, moreover, were men little qualified for the place and appointed by political influence. Such was the case with Joseph Bonaparte, who, at twenty-five years of age, was appointed commissary of the first class, as a lieutenant-colonel of the National Guards. (General Iung.) His uncle Fesch (who later became cardinal), was appointed storekeeper. Lucien Bonaparte had the same position in the army of Italy. Consequently with such a *personnel* and notwithstanding the best intentions of some of the corps and the active supervision of the representatives, empowered by the Convention to direct all the operations of supply, matters went wrong.

However, the Convention interested itself in the wants of the army.

"From the 1st nivose until the 20th pluviose all the shoemakers were engaged in making shoes exclusively for the army. Those who were working for private individuals had their work confiscated and were subject to a fine. Speculators, dishonest horse-dealers, and contractors were sent before the Revolutionary Tribunal. Billaud-Varenne even suggested that they be taken to the armies to be executed before the troops, covered with the great coats they had furnished." (General Iung.)

Notwithstanding these measures, notwithstanding the diligence of the commissaries of the Convention, the troops were in the greatest need. Paying in paper money they could obtain nothing. Robespierre the younger wrote on this subject to the Convention,—

"The army of Italy lives from hand to mouth; its magazines are not supplied. The defender of liberty is almost naked; the losses have been enormous through the lack of interest and unfitness of those having charge of the subsistence and clothing. It is absolutely necessary for you to grant us supplies of all kinds, coats, shirts, shoes, subsistence; we are in dire distress."

Masséna, who commanded the army of Italy at Saorgio, also wrote,—

"Our men are true mountaineers. Nothing stops them, nothing binds them save the sacred love of liberty. They only know how to conquer and never murmur; marching barefooted, often even without subsistence, they blame no one."

In short, if provisions, etc., were lacking for the Republican

armies, it was because there was no thorough organization of matters relating to subsistence, and because it was attempted to supply them, without magazines, from the countries occupied. Moreover, the separate corps of war commissaries had just been created, the too great powers of which had been defined by the law of 28th nivose, year III., and the law of 16th ventose of the same year; these laws relieved the commissaries of all subordination to the military commanders, and confided to them all the services before directed by commissaries of armies, the intendants and comptrollers.

"Published at a time when the social and political upheaval were at their height, in the midst of the necessities of an incessant warfare, the law of nivose, year III., was powerless to avert disorder, and the powerful hand of the First Consul was required to bring the remedy. On this account, finding that a single corps was insufficient to have the dual responsibility of the administration and the control of troops, he intrusted this last duty to special officers who were styled inspectors." ("Cours de Législation et d'Administration militaires," par M. Delaperrierre, Intendant-Général.)

In 1796 it was better, because the commissariat corps gradually became well organized and acquired the difficult knowledge of the art of administering and subsisting armies. Subsequently matters became still better in consequence of the application of the ideas of the First Consul, that is to say, the division of the duties.

CHAPTER III.[4]

NAPOLEON'S FOREIGN CAMPAIGNS.—PART I.

SECTION I.

ITALIAN CAMPAIGN (1796–1797).

NAPOLEON, upon taking command of the army of Italy, made an effort to improve the condition of the troops, who were in the greatest destitution.

As the Directory did not take sufficient interest in the wants of the soldiers, the armies had to live by the war,[5] that is, on the country; now, as they had been thrown back on the Italian frontiers, the resources were not large, few provisions, no clothing and no money; the men, says the Comte de Ségur, were even forced to sell a portion of their clothing in order to buy some tobacco or a little food.

[4] In this chapter the campaigns of Napoleon, as general-in-chief or emperor, from 1796 to 1812, are included.

[5] Cæsar said war should support war.

By his famous proclamation Bonaparte makes known to us the condition of that army.

"Soldiers," said he, "you are poor and nearly naked. The Government owes you much, but can do nothing for you. Your patience, your courage, honor you, but do not obtain for you either benefit or glory. I am going to lead you into the most fertile plains of the world; you will find large cities, abundant provisions; you will also find there honor, glory, and riches. Soldiers of the army of Italy, will you lack courage?"

The army, says Thiers, received that address with delight;[6] young generals who had their entire fortunes to make, adventurous and poor men, asked for nothing better than to see the beautiful countries they had been told of. Bonaparte arranged with a contractor, and obtained for his men a portion of the loan which was in arrears. Want was so great at that time that, in proportion to the sum carried by Napoleon, an allotment of four louis to each general seemed generous and all that was necessary.

Bonaparte, as we will see later, possessed all the qualifications of an administrator. As a general and organizer he took in everything with a quickness and correctness of opinion which astonished every one. He reorganized his supply service, and had the contractors' convoys march in rear of his columns. He made use of requisitions; for the matter of that, he suggested it in his proclamation. In a rich country like Lombardy, which he conquered in very short time, it was easy to supply his troops; therefore he did not in this instance display his great qualities as an administrator.

It is to be remarked that Bonaparte always had some relatives in the commissariat, and that he had thus acquired much information concerning administration.

In his work entitled "Bonaparte and his Time," General Iung tells us that when merely a lieutenant of artillery Bonaparte associated with the magistrate of Valencia and Commissary Naudin in preference to his regimental comrades.

From Montenotte to Rivoli, passing Castiglione and Arcola, that is, during that glorious time which singled him out for the admiration of all Europe, Bonaparte understood how to provide for his army in beautiful Lombardy, reorganized his regiments, and assured their pay, rations, and clothing.

During this celebrated campaign he subsisted his armies on the country occupied, and imposed upon the people and small Italian rulers contributions and requisitions which were sometimes very heavy. Frequently the requisitions degenerated to pillaging; it was, however,

[6] One battalion only did not reply to his appeal. According to the Comte de Ségur, this battalion complained of being without shoes, demanded its pay, and mutined, even refusing to march.

somewhat excusable for troops who for three years were upon the Alps, and who had often been without bread.

Immediately upon his arrival at Milan, Bonaparte was able to change the administrative services of his army, to clothe his troops with cloth that he obtained on requisition, and to establish magazines and hospitals. At the same time he sent eight millions to the Directory, one million of francs to the army of the Rhine and three hundred thousand francs to that of the Alps.

Some time afterwards, writing to the Directory on the subject of the organization of the army, Bonaparte criticised the organization of the commissariat, then composed of civil agents. He also said that commissaries should possess greater courage and familiarity with military matters than the officers themselves.

"The courage they need is wholly moral; it comes only from frequent exposures to danger." (Letter of August 25, 1796.)

Bonaparte, furthermore, was very severe with the agents who had not done their whole duty, and treated very rigorously the contractors who, by reason of lack of proper control, pillaged and made requisition for the army and were paid twice for the supplies furnished.

He wished to dispense with these contractors and civil commissaries, and desired, that which the army now has on campaign, officers and troops connected with the administration.

Napoleon said, regarding contractors, "I do not want a contractor who ruins himself without cause or acquires millions without giving satisfaction." Moreover, contractors were condemned by nearly all the general officers of that time.

In 1824 the Sous-Intendant Militaire Odier, professor at the staff school, wrote, "A contract in war compels you to be constantly occupied with the care of reconciling the contractor's interests with the views of the general. You desire to concentrate your troops in certain places; provisions there are very scarce and transports very expensive; good reasons will not be wanting to dissuade you from it; the contractors are not prepared. Are you compelled to retreat; he is abundantly supplied; it will be necessary to protect the evacuation of his magazines or expect to pay exorbitant indemnities. Are you making an expedition in an island, a dangerous operation; the contractor has not contracted for this expedition; a new bargain is necessary. Do you wish to use the company equipage for another branch of the service, for the artillery, for the hospitals; new bargains, new discussions. You are incessantly occupied in opposing the cupidity of the contractor. In all your movements you live on the country, and you pay the contractor who collects the good things of a supply which he has permitted you to gather, and who pays the inhabitant insufficiently. Finally, you have intrusted to a contractor the care of your subsistence, and

that contractor provides you with nothing; it is to his interest to do so, and frequently he cannot do otherwise.

"During a campaign, a contractor looks after two or three places; he takes care of the head-quarters, buys up the good things, makes detailed accounts, and receives millions, while the service is assured for him, through the attentions of the administrators by means of local resources."

The Intendant Vauchelle was of the same opinion; he wrote, "In armies, all the chances of the contract are against the administration.

"Necessarily deprived of all guarantees, of all the sureties which can be obtained at home in time of peace, the administration has only the skeleton of an extravagant or badly-managed service. The large capitalists will rarely place their money, the credit and reputation of their house, in a risky speculation. One is thus practically compelled to choose from among the adventurous men who always offer their assistance.

"Will the contractors, moreover, find at all times and everywhere the freedom and safety which commercial transactions require? Will not the purchases made at a distance often be lost by the unavoidable chances of war? Will it not happen that expeditions will be retarded or seized, convoys intercepted, pillaged or diverted? Or rather, will not the army itself assure its own service?

"Let us return to that fact which experience always teaches. The contractor, in an army actively engaged, does not really perform the service himself or through his agents save in such places where he comes under the observations of the commanding officers, and in places where circumstances afford him easy advantages. Everywhere else he will permit the army to assume the care of providing for itself, either by emergency purchases which effect him but slightly, or by requisitions, which, opening a large field to his operations, will result in large sources of profit to him.

"The exception will thus become the rule, and what is worthy of remark, and most conclusive, is that matters could not happen otherwise.

"In the strict economical way the administration accepts frankly both the good and the bad chances. She does not make allowances for misfortunes and real difficulties; she derives from the favorable opportunities all the advantages that may permit.

"The cares and troubles of her agents benefit the army without adding to the success of a private speculation almost always venturesome. The occupied country, necessarily put under contribution, is ground down less. This situation has finally the great advantage of being the correct one; it is all that it can possibly be, either favorable or otherwise, with the difficulties, privations, dangers, losses, or profits."

During the Italian campaign many of the evils of the contract

system cited above became manifest. The French troops had much to complain of the workings of the system, so Napoleon renounced it at the commencement of the empire.

Thinking, very properly, that it was necessary to organize in advance and on a military basis the administrative services, he created the troops of the administration, of transport, and execution.

The 26th of May, 1807, he formed the wagon-train which, later, rendered so much service; the 13th of April, 1809, he organized the military attendants in hospitals; and February 5, 1813, the government workmen.

Concerning the treasury, Bonaparte complained frequently of its bad working, of the enormous expense for transports for which it pledged itself to the companies (fifty thousand francs for a million), of the disorder which prevailed in the service, and of the lack of foresight of the agents, whom he accused of thinking very little of the well-being of the soldier.

SECTION II.

EGYPTIAN CAMPAIGN. (1798–1799.)

Upon embarking for Egypt,[7] Bonaparte, addressing his troops, said to them,—

"Two years ago you were in the vicinity of Genoa, in the greatest misery, wanting everything, having given up all that you possessed for your subsistence. I promised to end your miseries; I led you into Italy. There everything was granted you. Have I not kept my word to you? Well, understand that you have not yet done enough for the country, and that the country has not done enough for you. I am going to lead you into a territory where, by your future exploits, you will surpass those which astonish to-day your admirers, and will render to the country the services which she has a right to expect from an army of invincibles. I promise to each soldier that upon his return from this expedition he will have at his disposal enough to buy six acres of land."

These words filled the troops with enthusiasm; but, at the beginning of the campaign, when it was necessary to cross the desert of Damanhour, this enthusiasm soon got cold.[8]

We are going to examine how the wants of the troops were assured during this expedition.

[7] The fleet numbered one hundred and twelve men of war, under the command of Admiral Brueys, and four hundred transports. It carried forty thousand soldiers and ten thousand sailors; it had water for one month and provisions for two.

[8] Water was wanting, and the discouragement was such that the soldiers murmured. "Bonaparte saw even the brave Lannes and Murat seize their hats, throw them on the sand, and trample them under foot." (Thiers.)

Some weeks after his arrival Bonaparte wrote to his brother Joseph,—

"Egypt is the richest country in wheat, flax, vegetables, and meat there is in the world; barbarity is there at its height. There is no money there, not even to pay the troops."

After the battle of the Pyramids, the French troops were well fed in the towns and straggling villages they occupied along the Nile. The countries watered by this great river are moreover very rich; they produce in abundance wheat, corn, rice, sugar-cane, several kinds of vegetables, tobacco and coffee. The herds of oxen and sheep are very numerous; as to chickens, they are also found in large numbers. As regards subsistence, our troops were not badly situated in this fine country. Such was not the case during the expedition in Syria, most of the countries crossed being poor or exhausted and the convoys insufficiently provided with provisions; the necessity was such that the greater part of the beasts of burden had to be used for the transport of the wounded or sick. The revictualing was accomplished by means of camels, as in our day in the stations in Algeria and Tunis.

During this campaign Bonaparte gave the greatest care to the organization, administration, and subsistence of the troops, and if they often lacked the most indispensable things, that should be attributed to the immense difficulties he encountered in the execution of his vast undertakings. The officials of the Republic, on their part, sent over by small ships which avoided the English cruisers, and which started out suddenly from the coast of Spain, arms, ammunition, medicines, wines, liquors, etc.

After the defeat of Saint-Jean-d'Acre followed the disastrous retreat, during which the wounded, those stricken with the plague or only suspected of being so, were abandoned. (General Iung.) It was necessary, undoubtedly, to abandon the wounded and sick on account of lack of transport, as their number was very large. The temperature was then 36° C.; everything was destroyed on leaving Jaffa, in order to make of the cinders and famine a rear guard. The Comte de Ségur says that two thousand wounded and sick were sent away by the fleet. In any case, those who remained, reduced to half, suffered from hunger, thirst, and heat while crossing the desert to regain Egypt. The troopers, pointing to the sands of the great desert, said to each other, "Look! there are the six acres of land that have been given thee for thy retreat."

Later it was still worse, and Kléber, after the departure of Bonaparte for France, in his report to the Directory, said,—

"The army is reduced to half. The lack of arms, powder, cast-iron, and lead presents a very alarming picture. . . . The troops are naked, and the absence of clothing is as much more unfortunate when it is realized that, in this country, it is one of the most active causes of dysentery and ophthalmia, which maladies are constantly prevailing.

"General Bonaparte exhausted all the extraordinary resources in the first months after our arrival. He has levied as many contributions as the country could meet. To resort to such means to-day, when we are in our present condition, surrounded with enemies, would be to prepare an uprising on the first favorable opportunity. Nevertheless, Bonaparte, on his departure, has not left one sou in the chest, nor any equivalent object. He has left, on the other hand, a deficiency of twelve millions; it is more than the yearly revenue under the present circumstances. The back pay for the entire army amounts to more than four millions."

During this time the armies of the Republic operating in Germany and in Italy were nearly in the same condition; they had, however, the satisfaction of being less distant from the mother-country and of being less tried by the heat and sickness. In his "Mémoires," Général Comte de Ségur thus describes to us their situation:

"Abroad and at home, all the worst passions let loose, our allies devoured by our armies; in our armies themselves, generals without subordination, soldiers without issues, without pay, without discipline, robbed by their own administrators, and deserting to the number of eighty thousand."

It is seen from what precedes that the advances in organization, administration, supply, and finances had not been very marked in our armies before the Consulate.

SECTION III.

PASSAGE OF MOUNT ST. BERNARD. MARENGO. (1800.)

In Germany, Moreau by fortunate dispositions had just beaten the Austrians and took from them five important magazines; those of Engen, Stokach, Moeskirch, Biberach, and Donauwerth driving back Marshal Kray upon Ulm, the centre of his magazines. These circumstances allowed General Moreau to supply his army. During this time Bonaparte, the First Consul, advanced upon Italy and prepared for the passage of Mount St. Bernard.

In this campaign Napoleon took the greatest care in the organization and supply of his army. With Berthier, he sent, at the end of April, the orders and instructions relating to the raising of men and horses, the consignments of money, arms, utensils. The arrangements that he made on the subject were kept secret for some time, and, at the moment when the Austrians were expecting nothing, there they saw a French army, well equipped and well supplied, which they thought still at Dijon, pounce down on Piedmont. On that occasion Bonaparte showed his great qualities as an organizer and administrator. He accumulated at Lausanne, Vevey, and upon the course of the upper Rhone, from Villeneuve to Martigny, stores and ammunition; provisions, shoes, clothing; workshops for gunsmiths, for carpenters, and for

harness-makers, to complete or repair everything, were there assembled by his instructions, repeated a hundred times. (Comte de Ségur.) Then the baggage, the ammunition-wagons, and the guns, dismounted piece by piece, were either boxed up or placed on gun-sleds, in trees which were hollowed out, or on stretchers; the ammunition was loaded on mules. Each soldier carried, with his haversack and his ammunition, forty cartridges and eight days' rations.

The 17th of May a start was made from St. Pierre; the 23d Bard was passed during the night, and the next day Ivrée, the key of Italy, was taken.

Lannes, pushing forward as far as Pavia, seized Mélas's reserve magazines and two hundred guns, which enabled the army to supply itself without much difficulty.

June the 5th, Massena, compelled by famine, had capitulated at Genoa; but June 14 this capitulation, although a very honorable one, was avenged on the battle-field of Marengo.

During his operations in the plains of Lombardy, Napoleon thought it would be inexpedient to over-load his soldiers by compelling them to carry rations for a number of days in their haversacks. It was not so when he had to operate in the Alps, as he ordered that, for those expeditions, the men should carry rations. Macdonald had, on account of the lack of mules, to compel each of his troopers to carry rations for five days, and also ten packets of cartridges.

During this campaign of 1800 the French army was supplied as much by the commissariat—recently reorganized on a new basis—as by the contractors, who began then to disappear. Few stores were brought from France; scarcely any went out except those the troops carried with them; everything was gathered either in Lombardy or Piedmont, either by purchase or by requisitions, and often, for want of bread, our soldiers lived, as the inhabitants of the country, on polenta.[9] Their descendants, in 1859, being in the same plains, frequently lived on that food.

[9] Hasty pudding, which is made with chestnut- or corn-flour, which is largely consumed in Italy, and can also be prepared with potatoes. Formerly the Romans designated it under the name of meal. It was dried by the fire, and the people both in Italy and Greece used it as their principal nourishment.

(To be continued.)

THE STORY OF ALCATRAZ.

"FOUR cards, Doc? You are playing rather a reckless game to-night. Better pull out and lose a little than risk all you've got on a single card. Nearly a thousand in that pot, though; don't blame you much for staying. Lord, you've got a nerve!"

As the cards fell Paul Durmier turned the corners up stealthily, sheltering them with his hand from the eyes of the other players. A king—another—an ace—a king. When a man's last dollar is in the banker's pocket and his last chip in the jack-pot, such a draw is providential. The hand stood three kings and two aces. He was too skillful a gambler to allow the fire of joy which had sprung up in his heart to warm the lines of his countenance.

"Steady, gentlemen," he said, quietly; "I think we'll fatten that a little before proceeding. There's my check for five hundred dollars. No doubt you'll all come right in." Then softly to himself he added, "I don't bet with government money except on a sure thing. When a king full is not good, I'll go bankrupt."

There was a stir among the players, and some one grumbled about "bluffing." Four of then laid down their hands, shook their heads, and looked at one another. A gentleman in black, sitting opposite, turned his cards cautiously, faced them on the table, drew forth a check-book and wrote. His heavy brows covered the twinkle in his little beady eyes, and a furtive smile played at the corners of his mouth under the seclusion of his waxed moustache.

"I'll see that five and raise it five, Dr. Durmier," he said, coldly. "The gentlemen know that my check on the Bank of California is worth what it is written for."

Four deep breaths issued from the lungs of the vanquished players. They tipped back their chairs and looked at one another aghast, as if they had just seen a man fall from the roof of a building. Such wagers were not ordinarily laid in the quiet rooms of the Bavarian Club. It was against the rules; it was contrary to precedent. They watched the doctor write the duplicate of his former check,—five hundred dollars on the Pacific National. The issue was reached.

"Anything to please you, Mr. Jerome. I'll risk that to look at your hand." The players bent forward eagerly. The gentleman with the waxed moustache turned his cards carefully and spread them out in plain view.

Four queens and an ace!

Dr. Durmier rose to his feet, leaned upon the table, and stared at them wildly. There was no doubt. He had gambled away a thousand dollars of the public funds.

It was the climax that others had reached before, but never so quickly. It usually takes months to pile up a deficit of a thousand dollars. He had accomplished the feat in less than ten minutes,—surely a damnable distinction. Reeling through the open door, he staggered down the stair-way to the coat room, stubbornly striving to appear indifferent. Some one led him to the bar and placed a glass of whisky in his hand.

"Drink that, old man; you need a bracer," urged the Samaritan.

He pushed it nervously away. "No, no; I am only tired of playing. The boat leaves in half an hour. Good-by!" Rushing down the stair-way, he pushed open the heavy doors fiercely and disappeared.

Half an hour later, just as the whistle of the little steamer was blowing for the midnight trip around the harbor, he staggered down the gang-plank.

Later still he stood behind the granite battlement that crowns the citadel of Alcatraz and looked over the dark, still waters of the bay. The footsteps of the sentinels were stifled in the stillness of the night; the last belated tug had sought the wharf; the last glimmering light of the city had faded in the mist that overhung the lower bay. The strong rays from Alcatraz light-house, sweeping out through the Golden Gate, mingled with the darting flashes from Fort Point and Bonita, and hurried on to warn the sleepy midnight watch of the narrowing cliff-bound straits. Nature slept, and softly breathed amid the monotonous rushes of the surf against the feet of the rocks.

Far down below him the lighter objects of the island peered upward like spectres out of the darkness: the winding road descending to the dock—the stone tennis-court—the white walls of the light-house—the bronze figures of the field guns. By a side glance he could detect the outlines of the flower-beds, with the gravel walks between, and their heavy border of solid shot. He could see the bells of the Calla lilies, the voluptuous velvet of the Jacque roses, and the hanging jewels of the century plant rising in the centre of the garden.

Never before, even in the summer twilight, when every object in nature forces itself on the eye more vividly than the central figure in a painting,—never before had the homely images of the rock impressed themselves so sharply upon his mind. His eye flitted restlessly from one object to another, seeking one whose diffidence forbade its intrusion on his self-sought solitude.

There was the little adjutant's office perching like a martin's nest on the edge of the cliff, with the tall light-house standing over it like an Arab sentinel clad in white. Lower down the winding road, like

a trio of mastiffs sleeping with one eye open, reposed the commanding officer's quarters, with its two flanking companions, the captains' quarters. Still lower, on the first terrace, rose the great gray hospital; and below it the rambling masses of the prison buildings were lost in the vague shadows that encircled the water's edge.

The peace that dwelt upon the face of slumbering nature contrasted painfully with the tempest of emotions that swelled the heart of Paul Durmier. Anguish, regret, unspeakable dread, lashed the rock of reason like angry waters. In the sparkling dome above him seemed to swing the arms of a great balance,—to be, or not to be. Here in the open night might Fate cast the final atom which would launch him forward to the unexplored beyond.

Such heart strains and such perplexity could not be borne long. There was a pain at his heart. Shadowy images were floating before his eyes, and a dullness filled his brain and seemed to crush his senses. Other men had done this thing, and naught could spare them. They fled to other countries, dishonored, ruined. It would be better to die than endure dishonor. The government trusts no one, yet it crushes whom it cannot trust. The thought turned his brain to fire.

Then the dear wife—the little boy. They must not know; they could never bear his guilt. When life is dishonor, death is—but reason stops at the bounds of life. No one can tell of the life whose birth is death. The pain that galls eternal dissolution would be rest compared with the agony of living shame. The dread of the hereafter is not more terrible than the dread of existence cursed by the scorn of men.

But there was hope. If by any possibility the soul should not be immortal, the end of all things is in death. Life and honor might be made to terminate in the same breath. Immortality might be only a fiction,—a mere philosopher's fancy. There was hope in the thought.

He turned and straightened, questioning the horizon with his sharp eyes. Only the darkness answered. Shapeless masses of shadow slumbered under the dark outline of Tamalpais. The demon eyes of the Golden Gate gleamed with a melancholy radiance. Nature turned her face from the guilt that blackened his soul.

With noiseless steps he returned along the plank walk of the sentry's gallery, passing down the iron stair-way and through the western barbican. Choosing the stone pavement so that his footsteps would not grate upon the gravel, he stole silently down towards his office. There were some minor official matters that would need attention. As he paused at the head of the stone stair-way which descended to the first terrace, he glanced upward and saw the portly light-house-keeper trimming the lamps in the lens gallery. It was the end of the midnight watch. He crept on to the office and turned up the lamp at his desk. The attendant sleeping in the adjoining room would not wake before reveille for anything less than an earthquake. Rapidly he

turned over his papers, balanced his accounts, signed checks for the cash in bank, and closed the books. When all was complete he gathered them together and fastened them with a rubber band. That closed his business with the government, his erstwhile friend, his present enemy.

Dipping his pen he again wrote upon a slip of paper, "Take care of little Walley," and pinned a check to it. Mechanically his hand began to trace characters upon the tablet before him. "To die is the end of all. It blots out existence. The elements of life return to earth. Death is the end of growth,—it is the end of life,—there is nothing more."

The sentinel's cry at the prison bridge warned him of the passing hours. Already it was morning. He arranged the papers on the table, threw the scribblings into the waste-basket, and turned down the lamp. The glow of morn was rising over Mount Diablo. He ascended the carriage-road and climbed the stone stair-way.

Entering the door of the bastion over which the flag waves, in the first room he came upon his study desk, and on it the scattered manuscript of his book. How long, how earnestly, he had labored for its completion, trying to stifle the gaming passion under the strain of mental effort! He had worked until his head was filled with pains, and fiery images floated before his eyes. Thank God, now that it was finished it was a work to be proud of. He sat down, and on the first page of the manuscript wrote, "This is for Walley."

There was light enough now to render objects in the room visible. So he turned out the lamp. Up-stairs his wife might be awake. In order that he might not disturb her he removed his shoes. Every dainty object in the room made him think tenderly of her,—the silken cigar-case, the embroidered slipper-holder, the pictures hanging upon the wall. Poor little woman, how unworthy he felt now of her pure love! The evil passion which had blighted his life showed only more blackly by contrast with her wifely devotion.

It was time to arouse: the morning was fast breaking,—in the basement the Chinese servant was kindling the fires.

His hunting-coat hung in the closet. Hesitatingly, cautiously, he drew from the pocket a loaded shell. Would he take another? No; the thought was cruel. But death is the end of all, and to die in youth and happiness is better than to live and drink the bitter cup of dishonored widowhood. He took another shell, opened the breech of the gun, and inserted it in the barrel. Farewell home and the happy days and the friends that come and go. Farewell life that is not so lovely after all.

He threw off his coat and vest and with cat-like tread ascended the stairs. In the first room was the baby sleeping in his crib. Poor little fellow! He would never know, and he would not be happier if

he did. He bent and kissed the curly brow. The door of his wife's room stood ajar. He entered and closed it softly. She lay there smiling in her sleep, her arms above her head, the light of the morning sun wreathing her in its warm embrace. How pure, how womanly she looked! Oh, what cruel fate should doom a holy life to end so rudely! He threw back the covering. She did not move. The abdomen was sudden, fatal, and accessible. He reached over the foot-board and placed the muzzle of the gun within an inch of her clothing. Would not the officer in the adjoining room hear the report? No; he had passed the night at the Presidio. He pulled the trigger. Only a tremor passed over the slender form. The peaceful smile was fixed immovably. The room was filling with smoke, for the sheets had caught fire from the flame of the discharge. Reaching over, with his hands he crushed the fire from the blazing cloth. How fortunate it is that instant death prevents the flow of blood!

Now his turn had come, and he welcomed it. He drew forth the empty shell, inserted the second charge, and cocked the hammer. Which was the easiest way? How would he manage? Easily enough. He inclined the muzzle towards him and pressed his body against it. Then balancing himself upon one foot, he reached forward with the toe of the other and touched the trigger. A report—a cloud of smoke—a heavy fall—and the shadow of a great doubt was made a lucid certainty.

Ah Wong was waiting in the basement below in great desperation. The breakfast would keep no longer. Surely his master and mistress had been keeping late hours. They did not usually slumber until ten o'clock. He would steal softly up the stair-way and see if they were yet awake. Perhaps they were dressing,—he would not show impatience by calling them. On the way he met the fat light-house-keeper standing in the open door-way holding a basket.

"How do! What you catchee?" asked Wong in his usual monotone.

"Some eggs for your mistress. What! not up yet?"

"No, cap. Me call 'em now."

The light-keeper waddled back to the light-house, and Wong continued his ascent. He opened the door of the baby's room and peered in cautiously. Walley was crowing and kicking his heels in the air. Wong stole over to the crib and tickled him.

"What's mattah? You no get hungry yet?" he asked.

He rapped at the door of the adjoining room. No answer. He rapped again quite loud. Were they ill? Perhaps they had remained in the city the night before. He turned the knob and softly pushed the door ajar. What a queer smell! He poked his little shaven head through, and started back as if struck by an unseen hand.

Down the stairs he flew, leaving his wooden shoes tumbling along

behind him; then running barefooted into the adjoining quarters, he besought a lieutenant in terror-stricken tones to come quickly.

"Plenty devils,—him very sick on floor!" he cried, pointing upward.

Other officers joined the lieutenant, and together they ascended the stairs. An odor of burned powder pervaded the air. They pushed open the door and saw—that the army would have a promotion and a double funeral. Both bodies were cold and stiff.

On the floor lay the young surgeon, the blood slowly oozing from an ugly, blackened wound. At his feet the double-barreled shot-gun, falling, had jarred open at the breech. An empty shell was in the gun, another on the floor. On the bed lay the white form of the girl wife, her arms above her head, resting on the dark masses of her hair. It was as if she slept and was smiling in her sleep. They threw sheets over the bodies and drew painfully away. Before any friendly hand could interpose the civil law relating to sudden death must be complied with.

Sorrow came and dwelt upon the summit of the rock. The wise coroners appeared, and, shaking their heads, said, solemnly, "Murder and suicide during an attack of temporary insanity." Insanity has always played second to murder.

When friends came to lay their last offering of flowers, they found the two lying side by side in the little parlor under the flag. Choking down a sob, they looked into the white faces and said, "Who would have thought—so young—poor things!"

They made a simple grave under the cypress-trees in the great cemetery back of the Presidio, and there one sunny morning the little steamer bore them, still lying side by side, on its deck. There was a procession that followed slowly up the hill, there were many mourners, there were prayers that were thoughtful and sincere, and tears fell to the earth that day which were tender and full of love. The words of the minister were comforting, for no one knew but the coroner was right, and no one thought of the deadly purpose which commits a crime.

The dwellers on the rock to-day show you a vacant bastion that was long since abandoned to the bats and evil spirits. Some say that at midnight you can see lights flitting past the windows. But only one will offer to tell you the story of the bloody deed committed there, and that is the portly light-house-keeper. He dwells with pride upon each detail, and claims the honor of being first to view the dead, and to convey the news of the fearful event to the daily newspapers. Yet even he, when he reads this narrative, may learn that coroners can err, and insanity be not always connected with murder.

ALVIN H. SYDENHAM.

THE DECLINE OF SILVER AS COMPARED WITH GOLD.

A GREAT many meetings have been held and men have gathered together in convention halls a great many times during the past fifteen months to discuss the question of a remedy for our metallic financial trouble. Resolutions have been passed by these conventions which were a misleading series of falsehoods, such as, for instance, that silver and gold have since the beginning of history stood in relation to each other in about the ratio of sixteen to one. This is the cry of the free-silver demagogues, with the apparent hope of hoodwinking enough ignorant voters to carry themselves into *gold-lined* offices.

Now, it is a well-known fact that the most ancient method of trade was by barter,—that is, exchanging one article of merchandise for another; but as the world became more civilized and the articles of barter became more numerous, the conducting of business simply by means of exchanging one commodity for another became very burdensome, and it was found by experience that by the use of some particular substance as a medium of exchange the wants of man could be more nearly satisfied.

Originally the question was, What particular article of commerce shall be used as a medium of exchange? Undoubtedly, various things were tried, but it was soon found that the only commodities suitable for the purpose were those proved to have the most general uniformity of value and convenience as a measure of exchange for other commodities, hence the use of the most precious metals, gold and silver; but it was not long before it became a well-known fact that gold was the commodity or sort of money that was prized above all others. In short, it became the standard of value, because it was intrinsically worth what it was represented to be. Anciently, gold seems to have been very plentiful, for we are told that the sacred ark, the altar of incense, and the pillars and crossboards of the tabernacle were overlaid with pure gold; and in the days of Solomon, about 1015 B.C., it was used for drinking vessels, and to adorn the person in the form of ornamental chains, bracelets, crowns, medals, etc., in much the same manner as it is used to-day, and Alexander found immense quantities of it in the treasury of Darius, the Persian king. Hence we see that gold

being demanded by the people for use in the arts, and as ornaments for the person, it was easy to use this metal as the purchasing price of merchandise.

We read nothing of silver before the flood; but in Abraham's time traffic was carried on with it, though it was not coined till long after. In fact gold and silver were long weighed and not coined. Thus we see Abraham *weighed* the four hundred shekels which he gave for his burying place (Gen. xxiii. 15–16); and Jeremiah *weighed* the seventeen shekels of silver which he gave for his cousin's field.

History tells us that the shekels and talents by which money was estimated at that time were weights and not coins, and that there was no coined money in the world till about 3460 A.M., or 544 B.C., when Crœsus, king of Lydia, coined his crœsi and Darius, the Mede, coined his daries, or darkmoon.

The reason for making up metal in the form of coins was practically for the purpose of convenience so that the value of it might be known on inspection.

The Jews did not commence to coin money until about four hundred years after. Antiochus Sidetes gave Simon Maccabæus privilege for that purpose.

The first Roman coins were of copper or bronze, and the *æs* or *as*, or pound of bronze, is said to have been coined as early as the reign of Servius Tullius; but the Romans did not begin to coin silver until about 3735 A.M., and the coinage of gold was not commenced until 3795 A.M.

The ancient Britons used rings and plates of iron for money, and the first independent coinage of England consisted of a small copper coin called the styca and a small silver coin called the skeatta, and the first gold coin of England was not produced until the reign of Edward III., and it was known as the *noble*, and valued at six shillings and eight pence.

The first American money mentioned in history was the dried codfish of Newfoundland, and wampum, which consisted of small white and black shells strung like beads. Various forms of money were used during the colonial period, but the first real United States money was the silver dollar adopted by Congress in 1785, and made the unit of value.

Anciently, not only gold, silver, copper, and iron, but, in straitened circumstances, even leather, wood, shells, etc., have been used as money; yet even in the days when gold was plentiful, and when some of the Roman generals had prodigious quantities of it, which they carried before them in their triumphs,—even in those days gold was regarded as the most precious of the metals, and, while it may be possible that at a very early period gold and silver were equal to each other, weight for weight, we find that, in the time of Livy (B.C. 59 to A.D. 18), one

ounce of gold was worth ten of silver, or, in other words, the rate of exchange was at the ratio of 1 to 10.

A little later we find that the ancient stater of Greece was exchanged for silver at the ratio of 1 to 12.5, and, according to the proportion mentioned by Tacitus, the Roman gold coin, *aureus*, was exchanged for silver at the ratio of 1 to 12.54.

Blackstone tells us that above a thousand millions of bullion are calculated to have been imported into Europe from America within less than three hundred years after the discovery was made by Columbus; but we find that, in the reign of George III., the ratio existing between gold and silver was about 1 to 15, and it was enacted by statute, 14 George III., that "no tender of payment of silver money exceeding twenty-five pounds at one time shall be a sufficient tender in law for more than its value by weight." This statute, which demonetized silver in Great Britain, seems to have been the first sound in the tolling of its death-knell as one of the primary money metals. Thus silver lost its high place of honor at the right hand of gold, and by the stroke of a pen it was reduced to a commodity, because the public demanded a less variable substance for a standard. So much for the history of the decline of silver. Now, let us look for the reason of this downward journey of the white metal as a measure of value. We have seen that the Romans first began coining an alloy of copper, next they coined silver, and finally gold, and in about two hundred and fifty years after the first gold coin was struck at their mint we find that the ratio of value of gold to silver is as 1 to 12.54. Now, why was this? and to this question I hazard the answer that probably one of the causes of the decline of silver at that time was due to the Punic and Macedonian wars, but the real cause seems to have been the advancement of the people to a higher state of civilization.

Next, we see that the Roman people, who had conquered the world, were swallowed up by their own greatness, and there was a great scarcity of gold, occasioned by the hiding or neglecting of it during the widely-spread ravages of the Goths, Huns, Vandals, Saracens, and Turks, who spread the dark mantle of ignorance over a highly civilized people, and thus closed the first chapter in the book of history. During the period which followed this relapse into barbarism (the Dark Ages), the most important coin was the silver denier, or penny. Coins of this description were issued by the German empire, France, Scandinavia, and England, and on the disappearance of the skeatta and styca they formed, with the occasional addition of half-pennies, the sole currency of England down to the reign of Edward III. Thus we see in England a repetition of the Roman system of coinage in so far as the progress of civilization is concerned, for the English first coined copper, then silver, and lastly gold. And what

has been the result? History tells us that in less than four hundred years from the time that the first gold coin was struck in England silver had not only fallen to a ratio as low as 15 to 1, but that silver had practically been demonetized,—and why?

First. Like Rome, England had been recently engaged in great wars, not only at home, but in the colonies, and the United States of America had declared and won their independence.

Second. Like Rome, England had made great advancement in the scale of civilization.

After a careful examination of the decline of silver at two distinct and widely separated periods of the world's history, and having found that the fall of silver, in both cases, was practically due to the same cause or causes, what must be the inevitable conclusion?

Simply this: that the decline of silver is in the ratio of the progress of civilization; that the most progressive nations demand and use the most precious metal as the medium of their exchange; and that the less civilized nations are content to use a lower medium of exchange as gold and silver or even silver and copper.

In proof of the above statement, just take a glance at China. This is a vast empire thickly populated; but the inhabitants are not high in the scale of civilization; wages are low, especially for the unskilled laborer, who only receives about twenty cents per day; and the price of commodities are correspondingly low. Now, what kind of money is used in China? Namely, a heavy disk, called tchm or cash, about one inch in diameter, with a square hole in the centre. This disk is composed of an alloy of copper, and a Chinaman told me not long ago that ten of them were only worth one cent. Now, why do the Chinese use this kind of money? The answer is, simply because it suits their kind of trade better than the more precious metals would, and the fact that it is the only kind of coin used there indicates the wisdom of the Chinese in adhering to a money that suits their degree of civilization. In large transactions payment is made in silver by weight.

Now, if we look at Mexico, the West Indies, or at almost any of the Latin States of Central or South America, what do we find there? Low prices and low wages to be sure, but a higher degree of civilization, and consequently a higher standard of money than that which we found in China, for silver naturally takes its place as a standard of value above copper. Yet the industrial and educational conditions which prevail in these countries will prevent the use of a gold standard for many years to come.

But let us return again to the currency of the United States.

We have seen that in 1785, Congress, under the Articles of Confederation, adopted the silver dollar as a unit of money; but what was the condition of the country at that time. A long and exhausting war

had just been ended. All trade, manufactures, and agriculture had been neglected; wages were low and the treasury empty, and but little gold being mined. But when the new Federal constitution was adopted, in 1787, it contained the clause that "no State shall coin money, emit bills of credit, or make anything but gold or silver a tender in the payment of debts." This was a great forward step towards securing a substantial system of currency, for the Articles of Confederation simply stated that the United States "shall have the sole and exclusive right and power of regulating the alloy and value of coin struck by their own authority or by that of the respective States," without stating what class of metal should be coined; and in the Act of April 2, 1792, establishing a mint, it was disclosed that "the money of the United States shall be expressed in dollars or units." This was another step forward in the direction of sound currency, for the "dollar" or "unit" need not necessarily be a silver dollar, and, in fact, the act fixed the weight of the gold eagle at $247\frac{5}{10}$ grains, or the dollar, or unit of value, at $24\frac{3}{4}$ grains of gold. The silver dollar was to contain the same quantity of pure silver as established in 1785,—namely, $371\frac{1}{4}$ grains, which made the ratio of silver to gold as 1 to 15; and at this ratio gold was at a premium and began to disappear from circulation, being used to pay foreign debts, as it was worth more abroad than at home, for in France the ratio of silver to gold was 1 to $15\frac{1}{2}$. However, this ratio remained in force until 1834, when the weight of pure gold in the eagle was reduced to 232 grains, no change being made in the weight or fineness of the silver dollar, thus making one ounce of gold equal in value to 16.045 ounces of silver.

After this ratio was fixed the silver dollar began to bear a premium over the gold dollar in the London market, and with the intention of regulating this, Congress, in 1837, increased the pure gold in the eagle to $232\frac{2}{10}$ grains, thus fixing the ratio by weight at 1 to 15.988, or practically one to sixteen.

Still the silver dollar remained at a premium in London, and, as a consequence, silver money became scarcer. To counteract the tendency to export silver on account of its undervaluation relatively to gold, Congress, in February, 1853, passed an act reducing the proportion of pure silver in coins less than a dollar, which had heretofore, with the exception of the three-cent piece, been made of the same standard of fineness as the silver dollar, and this same act limited the legal tender of this fractional currency to five dollars at any one payment. This was the first limitation as to the legal tender of silver in the United States.

On the breaking out of the Rebellion, in 1861, the government was obliged to provide funds for carrying on the war, and during the four succeeding years recourse was had to the issue of bonds and legal tender notes to tide over this stupendous crisis; but the next legislation

pertaining to coined money was the Act of February 12, 1873, by which it was intended to collate and embrace in the one act all previous legislation on the subject of coinage, and which is now known as the great *demonetization act.* This act declared, "The gold coins of the United States shall be a one-dollar piece, which, at the standard of weight of twenty-five and eight-tenths grains, shall be the unit of value; a quarter-eagle, or two-and-a-half-dollar piece; a three-dollar piece; a half-eagle, or five-dollar piece; an eagle, or ten-dollar piece, and a double-eagle, or twenty-dollar piece." "The silver coins shall be a trade dollar, a half-dollar, or fifty-cent piece; a quarter-dollar, or twenty-five-cent piece; a dime, or ten-cent piece." After thus enumerating the coins, we find in Section 17 these words: "No coins, either of gold, silver, or minor coinage, shall hereafter be issued from the mint, other than those of the denominations, standards, and weights herein set forth;" and as no mention was made of the old unit dollar of 371¼ grains of pure silver, it was revised out of existence. But to make the demonetization of silver more complete, it was also provided that "the silver coins of the United States shall be a legal tender at their nominal value for any amount not exceeding five dollars in any one payment." This stopped the coinage of silver dollars, and in eighty-eight years we had passed from a silver unit of value to a gold unit of value. Who will say that this was not in keeping with our progress in civilization and our advancement as a nation? Where will you find in the history of nations a brighter or more interesting chapter than the one that records the advancement of the United States in area, population, and trade for those eighty-eight years, during which our money passed from a silver unit of value to a gold unit of value; but now let us look at the ratio of gold to silver at this time. The Act of February 12, 1873, did not change the then existing ratio between gold and silver of 1 to 15.988, for, in accordance with the act, the amount of pure gold in the one-dollar piece was 23.21997 grains, or practically 23.22 grains; but the silver mining industry of the United States, which practically began about 1860, had developed with wonderful rapidity, especially after 1865, and this increased production of silver, together with the adoption by Germany of the single gold standard, threw a great quantity of silver on the market, with the inevitable result of the panic of 1873, during which silver took an extraordinary decline, and, as a recognition of the unwillingness of the people to accept silver as a medium of exchange, the Latin Union, consisting of France, Belgium, Switzerland, Italy and Greece, limited the coinage of silver for all the states concerned to twenty-four million dollars per year.

This practically put the Latin Union on a gold basis, and silver went fluctuating up and down the scale until the coinage system throughout the world was placed in an uncertain and confused state, and the

coinage question became a theme of general discussion. During the Forty-fourth Congress it was a prolific source of debate, and on August 15, 1876, the Senate proposed a joint resolution for the appointment of a joint commission, to consist of three senators, three members of the House, and three experts; and to this commission the coinage question was referred for investigation. The report of this commission shows that the majority of the members were in favor of the remonetization of silver by the United States, but the report seems to have been made with the idea of preventing the demonetization of silver by France and the other states of the Latin Union. However, the subject continued to absorb the attention of our leading financiers, and resulted, in 1878, in the passage of an act entitled, "An act to authorize the coinage of the standard silver dollar, and to restore its legal tender character."

President Hayes vetoed this bill, but Congress promptly repassed it on February 28, 1878, by more than a two-thirds vote. Section 1 of the act provided for the coinage of the original silver dollar, of the same weight, fineness, devices, and superscriptions required by the Act of 1837; that it and all previously coined silver dollars of the United States shall be a legal tender at their nominal value for all debts and dues, public or private, except where otherwise expressly stipulated in the contract; that the Secretary of the Treasury is authorized and directed to purchase, from time to time, silver bullion, at the market price thereof, not less than two million dollars worth per month, and cause the same to be coined monthly, as fast as purchased, into such dollars, "provided that the amount of money at any one time invested in such silver bullion, exclusive of such resulting coin, shall not exceed five million dollars."

Thus, according to this act, our system of coinage was changed to a limited bimetallic standard. Silver dollars were made a legal tender, and the debtor could pay any amount in such silver coins, if he should happen to possess them. The government would not coin these dollars for the owner of bullion, but bought a limited amount each month, coined it, and paid these coins to the public creditors. The purchase by the government of two million dollars worth of silver per month created an artificial demand for silver, and gave a fresh enthusiasm to silver mining, which resulted in the remarkable discoveries of silver ore throughout Colorado and other parts of the West.

The second section of the same act directed the President of the United States to invite the states composing the Latin Union, and other European governments to join the United States in a conference "to adopt a common ratio between gold and silver, for the purpose of establishing, internationally, the use of bimetallic money." The conference met in Paris, and opened its first session on August 10, 1878, at the office of the minister of foreign affairs, but Germany declined to

send a delegate, though twice invited. And, at the fourth session, the delegates of the European states represented in the conference reported that, having maturely considered the proposals of the representatives of the United States, they recognize,—

1. "That it is necessary to maintain in the world the monetary functions of silver, as well as those of gold; but the selection for use of one or the other of the two metals, or of both simultaneously, should be governed by the special position of each state or group of states."

2. "That the question of the restriction of the coinage of silver should equally be left to the discretion of each state or group of states, according to the particular circumstances in which they may find themselves placed; and the more so, in that the disturbance produced during recent years in the silver market has variously affected the monetary situation of the several countries."

3. "That the differences of opinion which have appeared, and the fact that even some of the states which have a double standard find it impossible to enter into a mutual engagement with regard to the free coinage of silver, exclude the discussion of the adoption of a common ratio between the two metals."

Not only statesmen, but all voters should study carefully the declarations contained in the above-mentioned rules, for these rules contain about all of the important facts at issue between the gold-standard people and those who cry for the free coinage of silver.

The first rule states that it is necessary to maintain in the world the monetary functions of silver. This is undoubtedly an important truth, and the question immediately arises, how can this be successfully accomplished? Shall the monetary functions of silver be maintained by the free coinage of silver by all nations at a common ratio, or shall it be accomplished by the establishment of a limited international bimetallic coinage system? Both of these theories are precluded by the second rule, which states that the question of the restriction of the coinage of silver should be left to the discretion of each state. This is only carrying out the idea of equality between nations, because, as money is the medium of commerce, it is within the sovereign power of each nation, as arbiter of its domestic commerce, to fix the standard, by comparison with which the value of all merchandise within the nation may be ascertained; and no foreign nation has any right to interfere.

Different opinions will necessarily prevail in different nations as to what class or kind of money is most suitable to their peculiar industries and commerce, and, as declared in the third rule, this fact makes it impossible to enter into a mutual agreement with regard to the free coinage of silver.

But let us return to the Act of February 28, 1878. Here we find

that Section 3 provides for the issuance of silver certificates for sums not less than ten dollars, and that the coin deposited for the redemption of the certificates shall be retained in the treasury for the payment of the same on demand. The first section of this act was bad enough, but this section was a new departure in our monetary history, and it was the forerunner of the now famous Sherman law of July 14, 1890. This act, entitled "An Act directing the purchase of silver bullion, and the issue of treasury notes thereon, and for other purposes," provided that the Secretary of the Treasury purchase, from time to time, silver bullion to the aggregate amount of four million five hundred thousand ounces, or so much thereof as may be offered in each month at the market price thereof, not exceeding one dollar for $371\frac{25}{100}$ grains of pure silver, and to issue in payment for such purchases of silver bullion treasury notes of the United States.

Section 2 of this act provided, "That the treasury notes issued in accordance with the provisions of this act shall be redeemable on demand in coin, . . . and such treasury notes shall be a legal tender in the payment of all debts," and it further authorized the Secretary of the Treasury to "redeem such notes in gold or silver coin, at his discretion, it being the policy of the United States to maintain the two metals on a parity with each other upon the present legal ratio or such ratio as may be provided by law."

This act produced even greater activity in the mining districts than that occasioned by the Act of 1878, and under the artificial demand created by this act silver rose at one time to $1.19 per ounce, making the ratio between gold and silver as 1 to 17.33, while the legal ratio was not quite 1 to 16; and thus we see the United States was buying silver at the rate of $1.19 per ounce, and issuing this same silver from the mint at $1.29 per ounce, or in other words, declaring that a coin containing $371\frac{1}{4}$ grains of pure silver, and actually worth only ninety-two cents, shall be received in payment of all debts as one dollar, and reserving the profit on the transaction for the benefit of the treasury. Generally the difference between the actual value and the legal tender value of the silver dollar was much greater than this, for when the law was enacted silver was only worth about eighty-nine cents per ounce; but it is always the safest to consider the most favorable case in determining a question of this character. The half-dollar and the quarter-dollar, and the dime, of course are not of the intrinsic value that they purport to be worth, but the convenience of their use for making "change" in small transactions makes up for their deficiency in value; but no such result can be claimed for the silver one-dollar piece. Therefore is it any wonder that gold is shipped abroad to pay foreign debts, when a gold dollar will pay $12\frac{1}{2}$ per cent. more than the silver dollar. As a rule, business men who loan money consider eight cents on a dollar as an exceedingly good rate of interest, and

one cannot blame them for taking advantage of such an opportunity to increase their fortunes. If you should owe a foreign merchant one hundred dollars, you would hardly care to pay him one hundred and eight or ten silver dollars when the Secretary of the Treasury says, "Here, give me your silver dollars or treasury notes and I will give you gold dollars, each for each, with which you may pay this foreigner." This has been the strange policy of the United States since 1890, and what has been the result?

In 1893 gold became the measure of value in India, and, as the increase of silver was thrown upon the market, silver began to decline, notwithstanding the efforts of the United States to maintain silver on a parity with gold, and the very men who were instrumental in passing the Sherman law were clamoring for its repeal. But it was too late. The crisis was at hand. The panic of 1893 was upon us, and our treasury was nearly depleted of its gold reserve before the silver-purchase clause of the Sherman act could be repealed. And when the Secretary of the Treasury offered and sold $50,000,000 worth of United States bonds, which amount was to be paid by the purchasers in gold, was the gold reserve in the treasury increased by this amount? No. For some of the purchasers of these bonds took their treasury notes with them and demanded the redemption of these notes in gold, and with this gold they paid for the bonds that they had purchased. So the bond issue simply resulted in the redemption of so many treasury notes, and the vaults of our treasury, instead of being filled with gold coin, contain chiefly depreciated silver bullion. The repeal of the Sherman law only remedied one evil. It stopped the purchase of silver, but it did not stop the shipment of gold to Europe. The flow of gold from the United States still remains unchecked, and it must necessarily remain unchecked so long as the present legal ratio exists.

I believe in a limited coinage of silver, but there appears to be but one proper method of maintaining silver on a parity with gold, and that is, make the legal ratio the same as the relative value that silver bears to gold as an article of commerce. Put as much pure silver in the dollar as will make it worth a gold dollar, for gold is the only reliable monetary unit of measure. Silver, of course, varies greatly in price from year to year, and the ratio might have to be changed rather frequently; but if the bullion value of the silver dollar was a little greater than the coined value, it would be an error on the safe side, for the tendency would then be to increase the flow of gold to the United States, and that would do little or no harm for some time to come, because gold is really the life-blood of a nation. It is one of the most important factors of our national defense. European countries recognize this fact, and they are filling their military chests with no other kind of money. Why? Because gold is always in demand, always salable, and when war is waging it is the rock on which the

currency of the country must rest. Hence a treasury well filled with gold is more needful than ships of war or armor-protected forts bristling with heavy ordnance. Silver has declined in value. Shall or shall not the ratio of silver to gold be changed? This is the important question of the day, and unless the ratio is changed the United States will fall to the rank of a nation having a depreciated currency, with all the inevitable results. You cannot check the flow of gold from the United States so long as there remains a silver dollar within the Union that is only worth fifty cents. But the free-silver demagogues evidently do not want to stop the flow of gold from the United States, for some of them are bold enough to say, "If gold shall flow away from America and if silver shall become at last the sole metallic money, it will be this country which will be carried to a pitch of prosperity transcending all the past." Such assertions as this are easily exploded by a few facts; therefore let the ratio of gold to silver be changed to suit the commercial ratio of the two metals, say 1 to 23. This would give 544.06 grains of pure silver in every dollar, or $604\frac{51}{100}$ grains of standard silver, and thus make silver worth $88\frac{22}{100}$ cents per ounce. This changing of the ratio would create a demand for our silver dollars abroad, and by making all customs duties, payable in gold we would soon have a treasury filled with gold instead of silver, and the treasury notes could then be cancelled without the issue of more bonds.

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U. S. Army.

ORIGIN AND DEVELOPMENTS OF STEAM NAVIGATION.

(Continued from page 168.)

1848.—PACIFIC MAIL STEAMSHIP COMPANY.—This company was compelled at the outset to form an establishment of the most effective character four or five thousand miles away from home, and it was at that time thirteen thousand miles distant. The country was wholly new, so much so that it was, in most parts of the field which it had to occupy, extremely difficult to procure ordinary food for their operations. Their ships had to make a voyage more than half of that around the world before they arrived at their points of service, and they found themselves without a home when there. The steamer "California," 1086 tons, which left New York on the 6th of October, 1848, was the first of the line to bear the American flag to the Pacific Ocean, and the first to salute with a new life the solitudes of that rich and untrodden territory. She was soon followed by the "Panama," 1088 tons, and the "Oregon," 1099 tons, and in due course by the "Tennessee," the "Golden Gate," 2068 tons, the "Columbia," 778 tons, the "John L. Stephens," 2189 tons, the "Sonora," 1614 tons, the "Republic," 850 tons, the "Northerner," 1010 tons, the "Fremont," 576 tons, the "Tobago," 189 tons, the "St. Louis," 1621 tons, and the "Golden Age," 2280 tons.

These steamers found nothing ready to receive them in the Pacific. The company was compelled to construct large workshops and foundries for their repair, and now have at Benicia a large and excellent establishment, where they can easily construct a marine engine. They had also to build their own dry-dock. They had also to make shore establishments at Panama, San Francisco, and Astoria, which, with coal depots, etc., were extremely costly, owing to materials having to be transported so far and labor at the time being so high owing to the rush to the gold-diggings. For a portion of the time the company had to pay thirty dollars a ton for coal, and in one instance fifty dollars. The success of building up this large establishment in the Pacific was simply an accident, and that accident the discovery of gold.

It is impossible in these notes to give even a brief sketch of all the fortunes and misfortunes of this great steamship company, but it is

sufficient to say it still lives. All the early steamers were wooden paddle-wheelers, but, as in the case of all the ocean steamship companies, the fleet is now composed of iron screw ships. In 1876 it had a fleet of thirty-three steamers of an aggregate capacity of 74,000 tons of cargo, exclusive of the large space assigned to passengers; but that fleet has since been very much reduced. It had then thirty-five chief agencies, and its steamers called at forty-seven ports in the Pacific and those in the Atlantic.

The China and Japan Line was not started until the 1st of January, 1867, when the first of its fleet passed out of the Golden Gate of California bound across the Pacific to those ancient nations. The "Great Republic," "China," "Japan," and "America," all of them wooden vessels with paddle-wheels and walking-beam engines, soon followed. These vessels, of about 4000 tons each, made the voyage from San Francisco to Yokohama in twenty-two days, thence to Hong-Kong in seven days, the whole distance, including the stoppage at Yokohama, occupying thirty days.

In 1874 the company added to the line the "City of Tokio" and the "City of Peking," two magnificent iron screw steamships of 5560 tons burden, 423 feet in length, 48 feet wide, and 38 feet deep, being the largest steamships that had ever carried the American flag. They have since started a line of steamers to Australia and the Hawaiian Islands.

The voyage of the Pacific Mail Steamship Company's steamer "City of New York," from New York to San Francisco in 1876, was remarkable. The total distance, 13,552 miles, was performed in 59 days, the actual steaming time being 54 days, 14 hours. The entire passage was made on the coal shipped at New York, none having been taken on board *en route*. The runs were as follows:

New York to Cape Virgin, west entrance of the Strait of Magellan	7074 miles.
Through the strait	340 "
Cape Pillar, east entrance of Strait of Magellan, to San Francisco	6138 "
Total revolutions of the engines during the voyage	3,338,105
" distance, by observation run	13,552 miles.
" " by screw	14,235 "
" amount of coal consumed (dock to dock)	1485 tons.
" " " " at anchor (port consumption)	45 "
" " " " for steaming	1440 "
Average consumption of coal per day	26.4 "
" " " mile	239 lbs.
" revolutions per day, running time	61,250
" " minute	42.53
" speed per day, running time	248½ miles.

The following are the dimensions of the "City of New York": Length, 353 feet; beam, 40½ feet; tonnage, 3019. Engines, 1000 horse-power.

The following table gives the name, class, tonnage, and passenger capacity of the present fleet of the company, but does not give the foreign connecting lines in the Atlantic and South Pacific:

FLEET OF THE PACIFIC MAIL STEAMSHIP COMPANY, OCTOBER, 1882.

Vessels.	Tonnage.	Length.	Beam.	Passengers.	
				Cabin.	Steerage.
Atlantic Line.					
Acapulco	2572	300	43	190	300
City of Para	3532	345	38.6	. .	. .
Colon	2686	280	40	190	300
San Blas	2075	300	36	. .	. .
Panama and San Francisco Through Line.					
Colima	2906	312	40	190	300
Granada	2572	280	40	190	300
San José	2081	300	36	. .	. .
San Juan	2076	300	36	. .	. .
Central America and Mexican Line.					
City of Panama	1490	248	36.1	55	150
Clyde	2017	263	37	100	200
Costa Rica	1457	227	35	120	600
Honduras	1816	261.4	38.8	60	250
South Carolina	2099	257.1	35	80	200
China Line.					
City of Peking	5080	423	48	150	1500
City of Tokio	5080	425	48	150	1500
City of Rio de Janeiro	3548	344	38	. .	. .
Australian Line.					
City of New York	3019	339	40.2	150	600
City of Sydney	3017	353	40	150	500
Australia (*chartered*)	2737	376.9	37.4	. .	. .
Calandia (*chartered*)	2780	377	37.1	. .	. .

These vessels are *all* iron screw steamships.

The "City of Para" and the "City of Rio de Janeiro," formerly of the Brazilian Line, now belonging to the Pacific Mail Steamship Company, are sister ships. Each measures 368 feet 6 inches over all; beam, 38 feet 8 inches; hold, 28 feet 7 inches, with compound engines 42½ and 74½ inches in diameter; stroke, 5 feet. Each ship has six boilers, 10 feet 6 inches long and 13 feet in diameter. The register is 2548 tons; gross tonnage, 3500.

Steamships of the line sail from New York on the 10th, 20th, and 30th of each month, and from San Francisco on the 4th and 19th of each month *via* the Isthmus of Panama.

The voyage between New York and San Francisco occupies

twenty-five days: nine days between New York and Aspinwall; one day in crossing the Isthmus, including the transfer by steam-tug to or from steamers in the Bay of Panama; and fifteen days on the Pacific Ocean. Steamers call at no California port except San Francisco, and at no port between New York and Aspinwall. Connections are made at Aspinwall with Royal Mail, West India and Pacific, Transatlantique, and Hamburg-American steamers for ports on the Atlantic coast of Central, South, and North America, and the West India Islands.

At Panama, with Pacific Steam Navigation Company, for all Pacific ports of South America and Australia.

At Yokohama, with Mitsu-Bishi Mail Line, for Japanese ports and Shanghai.

At Hong-Kong, with Peninsular and Oriental, Messageries Maritimes, Jardine, Matheson & Co., and Douglas, Lapraik & Co.'s steamship lines for all China, India, and Eastern ports, and *via* Suez Canal for all European ports. Also with steamers for Manilla and Batavia.

At Auckland, with Union Steamship Company, for all New Zealand ports.

At Sydney, with Australian Steam Navigation Company, for Australian ports; with Union Steamship Company, for all New Zealand ports; with Eastern and Australian Steamship Company, for Keppel Bay, Bowen, Townsville, Somerset, and *via* Torres Straits for Batavia, Singapore, and Calcutta; with Peninsular and Oriental steamers, for Melbourne, Adelaide, King George's Sound, Ceylon, etc., also with steamers for New Caledonia and Hobart Town; with Tasmanian Steam Navigation Company, for Hobart Town and Launceton.

1850.—THE WARREN LINE OF STEAMSHIPS, BOSTON AND LIVERPOOL.—The nucleus of this line was the once celebrated sailing-packets of Enoch Train & Co.,—viz., the "Plymouth Rock," "Washington Irving," "Daniel Webster," "Anglo-American," "Anglo-Saxon," etc., ships of from one thousand to fifteen hundred tons; supplemented as the requirements of speed were called for by the clippers "Star of Empire," "Chatsworth," "Staffordshire," "Cathedral," and "Chariot of Fame," of from fifteen hundred to two thousand tons.

This line is a Boston enterprise for carrying freight and passengers between Boston and Liverpool. At times each ship has brought from four hundred to eight hundred emigrant passengers, and the pressure has been so great that other ships have been chartered.

Between 1850 and 1860 steam worked its way into the Atlantic carrying trade, and the Warren Company was among the first to substitute steam- for sailing-ships. Its first vessels were the "Propontis," "Bosphorus," "Delaware," "Meletia," "Peruvian," etc., bringing large cargoes, and an average of seven hundred emigrant passengers. Return cargoes were sought for in other ports.

In 1872 the trade had increased enough to warrant the placing of such large steamships on the line as the "Minnesota," "Victoria," and "Palestine," carrying from 2200 to 2800 tons of merchandise. The "Iowa" has the capacity of carrying 3300 tons of merchandise, exclusive of coal, and makes an average passage of ten and one-half days between Boston and Liverpool. Other ships of this line are the "Canopus," "Milanese," "Pharos," "Glamorgan," and "Pembroke," to which have been recently added the "Missouri," of 4300 tons, and the "Kansas," of 4500 tons dead-weight capacity.

In 1880 this line dispatched from Boston in eighty-four steamers 20,031 tons of merchandise, 28,176 oxen, 11,323 swine, and 18,053 sheep.

The "Missouri," Captain A. H. Burwell, arrived at Boston Friday, June 10, 1880, having sailed from Liverpool on the 29th of May, making her first ocean voyage in about twelve days.[1] She was built on the Clyde, and is pronounced one of the finest of the Atlantic steamers. Her dimensions are: Length, 425 feet; breadth, 43 feet 6 inches; depth, 35 feet 6 inches, and the tonnage under deck 5000. Her engines are 300 horse-power, constructed on the compound principle, which are supplied with steam from four steel boilers at a working pressure of eighty pounds to the square inch. The steamer is fitted with four decks; three are iron, throughout the entire length, and sheathed with wood planking. She is divided into eight water-tight compartments, and has water-ballast capacity to the extent of 700 tons, and her dead-weight cargo and coal capacity will be 5000 tons. The steam stearing-gear can be worked from aft, or in the pilot-house or on the bridge amidships.

1850.—The Inman Line.—The history of the Inman Line owes its inception to William Inman (who died in 1881) and his copartners, is the history of all the great institutions in England,—a good basis, sure foundations, and the gradual growth of a legitimate plan. It was the first regular line of steamers across the Atlantic, consisting entirely of iron ships, propelled by the screw. December 10, 1850, the "City of Glasgow," of 1600 tons and 350 horse-power, the first steamship of what was then called the Liverpool, New York, and Philadelphia Steamship Company, sailed from Liverpool for Philadelphia, having previously made several successive and successful voyages to New York,[2] under other owners. In June, 1851, the "City of Manchester"

[1] Captain Burwell died on his passage to Boston in command of one of the company's steamers, September, 1882.

[2] The "City of Glasgow" left Liverpool last for Philadelphia, March 1, 1854, and is supposed to have foundered at sea, as she was never heard from. The vessel and cargo were valued at $850,000.

Mr. Inman, having watched the performances of the "City of Glasgow" on her first trip to America, was convinced of the advantages she possessed over not merely sailing-ships, but over paddle-steamers, and therefore recommended her pur-

was added to the line. It was not until February, 1875, that the line was converted, in honor of its founder, into the "Inman Steamship Company," limited.

New York having just become the port of the Cunard fleet, the new line did not wish to enter into direct competition with the older company, but in 1857 the "Inman" went also to New York, and having decided to name their ships for the leading cities of the world, had already added to its line the "City of Philadelphia,"[3] "City of Baltimore," "City of Washington," and "Kangaroo," and in 1860 they added the "City of New York," when the company's service became a weekly one.

In 1863 the "City of London," "City of Cork," "City of Limerick," and "City of Dublin" were added to the line, and the number of the trips increased to three times a fortnight, and afterwards to twice a week. The fleet in 1880 consisted of eleven vessels, varying in gross tonnage from 2536 to 5490 tons, and in nominal horse-power from 350 to 1000. Five ships have been built within the last seven years, four being among the largest and finest merchant steamships afloat,—viz., the "City of Chester," "City of Richmond," "City of Berlin," and "City of Rome."

The "City of Berlin" was launched October 27, 1874. She has a gross tonnage of 5491, is 4634 tons, builder's measurement, and has a net register tonnage of 3139 tons. Her engines are 1000 nominal horse-power, but capable of being worked up to five times that amount of power. She is 513 feet in length over all, has four decks, and a molded width of 45 feet. These dimensions give her accommodations for 200 saloon, or first-class, and 1500 intermediate, or steerage, passengers, and a crew of 150 men. The contract with her builders was that she should indicate 5000 horse-power and steam about 16 knots. On her trial trip, at the measured mile, her engines indicated 5200 horse-power. She is propelled by a pair of inverted, direct-acting, compound high- and low-pressure engines. The low-pressure cylinder of these engines is 120 inches, and the high-pressure cylinder 72 inches in diameter, with a piston-stroke of 5 feet 6 inches. She has 12 boilers, heated by 36 furnaces, and they are so arranged that any number of them can be cut off. Her saloon is amidships, and is 44 feet in length by 43 in width, longitudinally divided by two rows

chase to his partners. Acting on his advice, they bought and dispatched her with four hundred steerage passengers in the winter of 1850 across the Atlantic, and thus inaugurated what is now known as the "Inman Line." The "City of Glasgow" did her work well, and falsified the prophecies of disaster. The "City of Manchester" left a profit of forty per cent. the first year of her movement.

[3] The "City of Philadelphia," on her passage from Liverpool to Philadelphia, struck on Cape Race, September 17, 1854, and was lost; the vessel and cargo being valued at $600,000,—passengers and crew saved. In 1870 the "City of Boston" sailed for Europe and has never since been heard of.

of walnut columns surmounted by gilded Corinthian capitals. It is lighted in the day time by an elegant cupola skylight.

The following description of this vessel by a passenger may well be compared with that of the "Thalmamegus," described by Athenæus, and built by Philopater, king of Egypt, which was 420 feet long, 57 feet broad, and 72 feet high from the keel. The element of steam was of course wanting.

"There is certainly no finer steamer afloat, none more comfortable. Seated at dinner in her saloon, lounging in her smoking-room, or chatting with the ladies in their divan, you may easily forget you are at sea. The 'City of Berlin' has two decks, both of them superior to anything I have ever seen. You can have a promenade of nearly five hundred feet straight ahead, and the clean sweep of the lower deck from one end to the other is something superb. The lower deck looks like a little town, and it is a great deal pleasanter than most little towns. There is a row of handsome-looking houses, with a street open to the sea on either side. These houses, bright and neat, with their descriptions engraved on each in English, French, and German, are the officers' rooms, ladies' room, smoking-room, etc., all opening upon the deck on both sides, so that their ventilation and comfort are perfect. The smoking-room has electric bells and other conveniences. The ladies' public room is spacious, and filled with sofas and seats, so that the occupants can sit and chat with their male friends outside, or draw a curtain and shut themselves from all observation, or retire to a private room below (which opens upon lavatories and bath-rooms), and is one of the snuggest apartments in the ship, furnished in excellent taste, and provided with luxuries and comforts undreamed of in private houses. In the companion-way hangs a list of the crew, and the boats to which they belong. The call is made every day; each man has his number, and in case of danger he knows exactly what to do. . . . The state-rooms are lighted from the deck by protected windows. In the best rooms, in addition to the usual berths, is a sofa made so that it can be converted into a berth large enough for two. The washing conveniences are such that you turn the taps in your state-room to wash with more confidence than if you had a London reservoir to draw from, there being between three and four miles of lead piping in the ship. The bath-tubs are all of white marble. You arrange the business of getting a bath with the steward. At the entrance of each bath is a slate, on which is inscribed the passenger's name and the time at which the bath is devoted to him. Should he fail to appear, the others go on in rotation.

"The saloon is furnished in Spanish mahogany and purple velvet. There are four rows of tables, and the menu and wine-card is something to be remembered. The captain presides at one, the purser at another, the surgeon at a third, and some favored passenger at the fourth.

The ship comprises within its vast domain a barber-shop, a butcher-shop, vegetable-store, kitchen, with lifts and shoots for the convenience of cooks and waiters, a bakery, a laundry, a surgery, hospital and infirmaries, and ice-houses. Indeed, nothing is wanting: even a light-house is provided. The sleeping accommodations are so arranged that by writing early, families or parties of eight, sixteen, and twenty-four can be berthed in private rooms."

The "City of Paris" in 1869 conveyed his Royal Highness Prince Arthur (now Duke of Connaught) to America in *six days, twenty-one hours*, the quickest passage ever made to any part of the New World from Cork. The prince attended divine service at Queenstown on Sunday, embarked at 4 P.M. that day, and was landed at Halifax, Nova Scotia, at half-past 10 A.M. on the following Sunday in time for morning service at that place, which, to his credit, he also attended.

In 1874 the average time made by the fifty-one sailings of the Inman steamers between Queenstown and Sandy Hook, New York, 2775 miles, was 10 days, 22 hours, 1 minute. The same year the "City of Chester" and the "City of Richmond," the newest and swiftest of the line, made seven passages each, none of which exceeded 9 days, the longest being the "Richmond's," in 8 days, 21 hours, 41 minutes, and the shortest the "Chester's," in 8 days, 1 hour, 38 minutes. The passages covered the whole of 1874, the vessels being subject to all the phases of the variable Atlantic. In December, 1875, the "City of Brussels" made the passage from New York to Queenstown in 7 days, 20 hours, 33 minutes, the "City of Richmond" in 7 days, 18 hours, 50 minutes, and in September and October the "City of Berlin" made passages *both ways* in 7 days, 18 hours, 2 minutes, 7 days, 15 hours, 48 minutes, and 7 days, 14 hours, 12 minutes.

The Inman was the first line to make special provisions for emigrant passengers, and during the ten years ending in 1863 had carried a yearly average of 30,000 passengers, or 300,000. The next ten years exhibited even better results, the number of passengers carried exceeding 787,000, or an annual average of 78,700.

From 1850 to 1860 no mails were carried, Mr. Inman holding that "ocean postage" was the proper way of paying for mail services rather than by monopolies and subsidies. When the Collins Line of American steamers was withdrawn the Inman came into the gap and carried the American mails, receiving for the service eight pence per half-ounce for letters, the postage being one shilling per half-ounce. The *Inman Company has never had a subsidy*, and has never been paid but for work done. When they came to agreement in 1867 with the Cunard Company to run a tri-weekly service to New York, they were paid £35,000 per annum for one sailing a week, which was less than one-half the remuneration they would have been paid under the ocean

postage system. Thus the company carried the royal mail from 1868 until December, 1876, in conjunction with the Cunard. In 1877 the British government entered into arrangements with the Inman, Cunard, and White Star Lines (exclusively) to run the mails tri-weekly—viz., Tuesday, Thursday, and Saturday—to New York.

On the 30th of December, 1881, the "City of Brussels" took from Liverpool to New York seven hundred and sixty sacks of mail matter, the largest shipment of that kind ever sent to New York.

The "City of Rome," launched on the 14th of June, 1881, at Barrow-in-Furness, by the Barrow Ship-Building Company, was regarded as the most appropriate name which could be given to the latest addition to the Inman fleet. Not many years ago Barrow was a handful of houses; it is now a town with thousands of inhabitants, whose prosperity depends upon the enterprise and ability which have led to the construction of the "City of Rome." The builders and owners of the vessel united to make the occasion memorable. A conspicuous proof of the friendly rivalry between the transatlantic companies was shown by the presence at the launch of representatives of the Cunard, White Star, National, and Allan Lines. The launch was successfully accomplished; the ceremony of christening being performed by Lady Constance Stanley. The vessel arrived in the Mersey from her trial trip on the 14th of September following.[4]

The decoration of ocean steamers is generally of a hybrid sort, and not always in the best of taste. In the "City of Rome" a consistent design has been harmoniously executed, and finds expression in richness of material rather than emphasis of color. An inspection of her saloons and cabins carries away a recollection of noiseless carpets, neutral hues, the flashings of beveled mirrors, gold and ebony panelings, embroidered curtains, silver lamps, stained glass, yielding cushions of green velvet, and faint designs of tapestries. The decorations belong to the modern æsthetic, and have been chosen for their utility, appropriateness, and beauty. The figure-head, about three times life-size, represents a Roman emperor, Hadrian, modeled from the statue in the British Museum in strict conformity with its model. The stern is enriched by festoons on either side, the centre being marked by a carving of the arms and crest of the city of Rome. As a compliment, the municipality of the ancient metropolis sent a copy on vellum of the arms and

[4] The "City of Rome" sailed from Liverpool for New York April 6, 1882, on her first trip. She made her last trip as one of the Inman Line to New York in September. She has since been transferred to the Anchor Line, and is advertised by that line to sail from New York in October. She was returned to her builders by the Inman Company, because she failed to come up to the contract in many important respects, notably in speed, carrying capacity, and draught of water. The Barrow Ship-Building Company agreed to take her back and pay every expense the Inman Company had gone to with her rather than stand a suit for £125,000 sterling damages which the Inman Company had commenced.

crest of the city, which are hung up in one of the principal apartments of the vessel.

The dimensions of the "City of Rome" are: Length, 586 feet; extreme breadth, 52 feet 3 inches; depth of hold, 37 feet; tonnage, 8826 tons; horse-power indicated, 10,000. The weight of this great steamer is 8000 tons, and her displacement, at 26 feet mean draught, is 13,500 tons; so that she has a dead-weight carrying power of 5500 tons. The cubical contents of her hold give her a measurement capacity of 7720 tons, at 50 cubic feet to the ton. She has 4 masts, 3 funnels, and has 11 compartments formed by water-tight bulkheads, each extending to the main-deck. The largest of these compartments is 60 feet long; and supposing one filled with water, the trim of the vessel would not be materially affected. The stern frame is the largest forging ever made for such a purpose, the finished weight being 33 tons. The framing of the vessel is of the ordinary type: the floors are 34 inches deep at the centre line. The frames are in one length from centre line to gunwale, and are of angle-iron 7 inches by 4 inches, and 60 feet in length. The reverse frames are in one length of 4 inches by 4 inches angle-iron. The beams are of the Butterley bulb sections, each rolled in one length. The vessel has two complete iron decks above, while the lower deck is complete for half the length, and has wide plating on each side of the remainder. The "City of Rome" has nine keelsons. The five central ones are of uniform height, and are carried unbroken through the engine- and boiler-seatings. The shell plating is on the principle that has been applied to all the large transatlantic steamers built in Barrow. The inside plates form a complete skin, fitted edge to edge and butt to butt, with covering plates half the width of the inside strakes fitted outside. The hold stanchions are arranged in two tiers, one on each side, the better to support and strengthen the long beams. The question of propelling the ship at so high a speed as 18 knots per hour demanded careful consideration, and it was ultimately decided that it would be best to adhere to the single-screw arrangement, and adopt a propeller 24 feet in diameter, driven by three sets of inverted "tandem" engines, working on three cranks disposed at an angle of 120 degrees with one another. The "tandem" engine has the high-pressure cylinder placed in a line behind or above the low-pressure cylinder. The crank-shaft is a built shaft, and, with the screw shafting, was made by Sir Joseph Whitworth & Co. of their fluid compressed steel. The leading particulars of the engines are: there are three high-pressure cylinders 43 inches diameter, and three low-pressure cylinders 86 inches diameter, and 6-feet stroke. The diameter of the crank-shaft is 25 inches, and of the crank-pins 26 inches. The length of the main bearings is 33½ inches, and of the crank-pins 28 inches. The crank-shaft weighs 64 tons; had it been made of iron, and solid, the weight would have been 73 tons. The

propeller shafting is 24 inches diameter, and the hole through it 14 inches diameter. The thrust-shaft has thirteen collars 39½ inches diameter, giving a surface of 6000 square inches. This piece of shafting weighs 17 tons. The propeller-shaft is 25 inches diameter and 30½ feet long, and weighs 18 tons. The bed-plate weighs 100 tons. The cooling surface of the condensers is 17,000 square feet, equal to nearly 17 miles 360 yards of tubing. There are two air-pumps, 39 inches diameter, and 3 feet stroke, worked by levers attached to the aft and forward engines. There is a pumping-engine, which can be used for pumping heavy leaks, or can also discharge through the condenser. There are also three auxiliary pumping-engines, for feeding the boilers, for bilge-pumping, and for deck purposes. Steam is supplied by eight cylindrical tubular boilers, fired from both ends. Each boiler is 14 feet mean diameter, and 19 feet long, with a steam-receiver 13 feet long and 4 feet diameter; and has 6 furnaces 3 feet 9 inches diameter, 3 at each end: 48 furnaces in all. The fire-bars are 6 feet long, giving a grate surface of 1080 square feet. The shell plates of the boilers are 24 feet 8 inches long, 4 feet 4½ inches wide, and 1¼ inches thick, and weigh nearly 2½ tons each; all the holes are drilled. Each furnace has its separate combustion-chamber. These boilers are constructed for a working pressure of 90 pounds per square inch. The engines are intended to work constantly at 8000 indicated horse-power, but are capable of developing 10,000 horse-power, indicated.

It is difficult to convey in words an adequate idea of the engine-room. Four Serrin lamps render it as bright as day. These lamps have no glass shades, and give no trouble. It may help a little to realize what her engines are when we state the engine-room is 50 feet wide and of the same length. The engines are 47 feet 8 inches high from the bottom of the frames to the tops of the high-pressure cylinders; that is to say, as high as an ordinary four-story house. Access to the engine-room platforms is by iron staircases, which will take three persons abreast. Entering from the upper deck, nothing is to be seen but the three high-pressure cylinders and the lids of the low-pressure cylinders, a close grating concealing all the rest of the machinery below. Descending the first flight of stairs, which runs fore and aft, we are on the second platform surrounding the low-pressure cylinders, which is the only hot place in the engine-room. Passing between the cylinders and the steps we have descended, we come to a second flight, aft of the engines, and running athwartships, and descend to the third platform, from which access is got to the two stuffing-boxes in the lower lid of each low-pressure cylinder. Standing here, and looking forward between the frames, we have a sight unique. We see the three mighty cross-heads, with their guides, and the jaws of the great connecting-rods moving up and down in rhythmical sequence in the vivid glare of the electric lamps, which cast strong shadows on

the white bulkheads. Passing to the lower floor again, we have before us the like of which can nowhere else be seen. Here is ample room to walk about; there is no steam to indicate the presence of an engine, for the cylinders are high over our heads. We look up and see the black covers looming far above; straight before us is the crank-shaft. As we look at it we realize that it is the largest crank-shaft in the world; it weighs 66 tons. Each of three cranks, with its shafting, occupies a length of 14 feet, and weighs 22 tons. A tall man, standing beside one of the cranks, is dwarfed. Each crank-pit is a chasm. The rush of water from the pipes over the bearings is caught, and the crank, which has given so much trouble, scatters a light spray, the drops gleaming like jewels in the electric light. The noise is monotonous, but not wearisome. The great connecting-rod brasses are just a little slack, and the want of lead in the slides makes the pistons slow in getting away from the cylinder-covers; and we have, as the cranks revolve, not a blow or a knock, but a soft, all-pervading thud, as each centre is turned. Away aft runs the main screw-shaft, 24 inches in diameter. The thrust-shaft has 12 collars 4 feet in diameter, and weighs 17 tons. Following it down the long tunnel we lose by degrees all the sights and sounds of the ship. Then a noise, as of a village water-wheel, a pattering and murmuring of water, reaches us. Standing on an angle-iron brace, we look through a hole in the last bulkhead in the ship, and see by the light of an engine-room lamp a small pool of water under the end of the stern-tube, and in this pool dips the last coupling, 4 feet in diameter, like its fellows; and the nuts and the heads of the bolts of the coupling patter in the water, and make the sounds which have different associations. It may be well to explain, with reference to the engines, that the bald figures of horse-power do not express the true significance of the progress which has been made in that department of naval science. The engines now in use are not only infinitely more powerful, but they are relatively more economical. The engines, with which earlier vessels were equipped, have been superseded by compound condensing-engines, which accumulate force and utilize the steam more fully, so that with a reduced consumption of fuel there is an increased power of propulsion. Without this progress in engineering skill the development of steam navigation would have been impossible. Either the vessels could not have carried a sufficiency of fuel, or the storage of it would have engrossed so large a proportion of the cargo space that they could not have been worked profitably.[5]

An example of the revolution in the engine-room may be cited from one of the Inman steamers. The "City of Brussels" was placed on the line in 1869, when she was regarded as a model of nautical excellence,—the "crack" ship of her day. But within seven years of

[5] This fulfills Dr. Lardner's famous opinion or prediction.

her launch, while her hull and sailing appointments were in undiminished efficiency, her machinery had become antiquated, and she was furnished with entirely new engines. This costly renovation was made with the result that by the new compound engines equal power was attained on a much smaller consumption of coal. It is needless to explain that to save 40 to 50 tons of coal per day was a direct economy of fuel, and a gain of space for the stowage of freight-earning cargo. In fact, by the change of engines the consumption of fuel was reduced from about 110 tons per day to less than 65 tons, and the cargo space augmented by about 800 tons, with an increase of propelling power. Compound engines have introduced a revolution almost as complete as did first the paddle-wheels and next the screw, and are now universal in ocean-going steamers, one of the largest sets ever constructed being fitted on board the "City of Rome."

On the trial trip of the "City of Rome," working at three-quarters speed, with 45 revolutions per minute, the measured mile was performed at the rate of 15¾ knots per hour; but as the engines at full speed make 58 or 60 revolutions per minute, the ship will, it is expected, in practice attain a speed of 17 or 18 knots per hour. In the series of tests the engines worked with great smoothness, and it was demonstrated that they could be brought to a dead stop in two seconds by the turning of a single lever, and that from going full speed ahead they could be reversed to full speed astern in the space of five seconds.

The internal arrangements of the "City of Rome" are of the most complete nature. The promenade-deck carries at the fore end the saloon skylight. In the hurricane deck-house the captain's and chief officer's cabins are placed close to the steering-house and lookout bridge, so that they are always near in case of necessity. Abaft this is the upper saloon, and abaft this the upper smoking-rooms is a novel feature, it being thought advisable, in view of the large number of passengers, to fit two smoking-rooms, with separate stairs to the cabin-deck. In the after deck-house is a saloon or lounge for ladies, fitted up in the most elegant manner, to prevent the going below in showery weather. Abaft is a companion leading to the sleeping-cabins. At the sides of the hurricane-deck are twelve life-boats, one fitted up as a steam-launch. On this deck are placed capstans, and at each of the cargo hatchways steam-winches for working the cargo. On the upper deck is the drawing-room, one hundred feet long, for the use of passengers. This apartment, which is fitted very handsomely with lounges, is in the form of a wide gallery, with a rectangular opening into the dining-saloon below, thus giving height and light to the latter apartment. Above is a large skylight, richly ornamented; at the fore end is a grand piano, and at the after end the grand staircase to the dining-room below. Here, also, is the lower smoking-room, which is fitted similarly to the upper; the paneling of these rooms is in wain-

scot oak, the floor is laid in mosaic pavement, and the upholstery in morocco leather. Abaft this are the rooms for the officers and engineers. The height in the 'tween decks is 9 feet. The grand dining-saloon is 72 feet long, 52 feet wide, and 9 feet high, or 17 feet in the opening to the drawing-room above. This opening, surmounted by the skylight, forms an effective and elegant relief to the flat and heavy ceiling. The paneling and decorations are artistic and unique. The apartment accommodates two hundred and fifty first-class passengers. The chairs are of polished teak-wood, neatly fluted, with the Inman monogram carved in open work. They revolve on pivots, and are numbered to correspond with the state-rooms. At night the saloon is lit by thirty-two Swan incandescent electric lamps, pendent from the ceiling, giving the whole a brilliant appearance. A paneled dado, of quaint design, three feet high, is carried entirely round the saloon, and from the dado cornice to the line of the ceiling the wall is treated with rich panels of figured mahogany, bordered with a margin of satin-wood, alternating with the side-light casings. These side-lights are more architectural than is usually found on board steamships. An architrave is carried in a square form round the side-lights, inclosing a secondary sill, and runs down to the top of the dado. From the centres of each of the intermediate panels the corbels (elaborate pieces of molded and carved oak) spring, making the lines of the ceiling construction, and carrying them down on the walls. At the level of the corbel capitals the ceiling rises upon elliptic arches between the beams, suggesting the fan vaunting, which is so beautiful in Gothic architecture. The music-room is immediately above the saloon, and is rather more severe in its style, being finished in black and gold. The room is surmounted by a handsome circular skylight, twenty feet long by ten feet wide, which throws down a flood of light to the dining- and music-rooms. A special feature in this skylight is the introduction of oval lights, enlarged to double the area where they pass into the ceiling of the dining-saloon. An organ is in the dining-saloon, and a grand piano in the music-room. The ladies' boudoir, on the main-deck, is fitted in a very handsome manner, the walls being paneled in figured brocaded silk, and the ceiling in Japanese leather paper. The couch is upholstered in blue velvet, with tapestry curtains. Alongside are baths, etc., for the lady passengers. On the hurricane-deck is another boudoir, treated in a contrast, with black and gold. The furniture and upholstery of this boudoir is of amber-colored plush velvet, and the window-hangings and door portière are of Roman cloth of the same tone, banded with stripes of plush. The smoking-rooms are beautifully fitted, that on the saloon-deck having a novel treatment of wall paneling of original Japanese water-color sketches of birds and flowers. The seats are covered with pig-skin leather. The wood-work of the walls, etc., in the upper smoking-room is of pencil cedar-

wood; in the lower of mahogany, oak, and walnut. The floors of those apartments are laid with parquetry. Abaft the music-saloon are the repositories for the plate and dishes for the service of the table, and abaft of these the cook's and steward's portion of the ship. The breadth and general style of the kitchen may surprise many, but when the number of passengers is taken into account wonder at the gigantic proportions for feeding them will cease. Four hundred cabin passengers and 1800 steerage, with about 240 of a crew, may have to be provided for on a voyage, and in that aspect the rooms for cooks and stewards are none too many. Going aft beyond the regions where the cook presides, we come on the engine-room. Nearer the stern we come to the quarters of the steerage passengers, and these, though of course not rich like the cabin, are roomy and clean to a degree that would surprise old Atlantic stagers. Still aft there is an engine for the service of the electric light, with which the whole ship is to be fitted. An ominous notice warns all who come near that instantaneous death may result from the incautious handling of the wires. At the stern there is a ponderous steering apparatus, although the place from which the steering is to be done is far off on the captain's bridge, where there is the now familiar little wheel which is used in steering by steam.

The crew numbers, when the full complement is aboard, 240. There are berths for 54 firemen and 50 seamen, while over 100 are in the cook and steward's department, and 12 directly connected with the engine-room.

Opening through double spring-doors at the foot of the grand staircase, and under, is an American luncheon-bar, with the usual fittings. On each side, from the saloon to the after end of the engine-room, are state-rooms, providing for 300 passengers. Amidships are retiring-rooms, baths, and lavatories, barber's shop, etc. Accommodation is provided on the main-deck for 500 emigrants, and on the lower deck for 1000 more, making a grand total of 1500. The berths are arranged in single tiers or half-rooms, each separated by a passage, and having a large side-light, adding greatly to the light, ventilation, and comfort of the passengers, besides the advantage of a lesser number of persons in each room. Comfortable and properly equipped wash-rooms are provided for both sexes.

In proportions and design the "City of Rome" presents a remarkable contrast to the "Great Eastern," to which she stands next in magnitude in the mercantile marine. Brunel's vessel suggests a stately ark, with towering walls and ponderous hull, massive, stupendous, rather than elegant. The conditions are reversed in this vessel. The "City of Rome" is of great length, tapering form, symmetrical lines, and graceful mold, so that the inexperienced observer is unable to realize her enormous dimensions. The difference of proportions be-

tween the two vessels shows how scientific theory is modified by practical experiment. In designing the "Great Eastern," Brunel had no other guide than his scientific knowledge; there were no gradations between the puny vessels of five-and-twenty years ago and the leviathan he constructed; and he reckoned the length, beam, and depth on bases which the practice of later ship-building has not confirmed. The tendency of naval construction in the merchant navy is to lengthen the hulls, without, in any appreciable degree, increasing the beam or depth of the hold. This is apparent by comparing the dimensions of these typical vessels, the "Great Eastern" and the "City of Rome." The length of the former is 680 feet; her breadth of beam, 83 feet; depth, 60 feet. The measurements of the "City of Rome" are: Length, 586 feet; breadth of beam, 52 feet 3 inches; and depth of hold, 37 feet; while in length she closely approximates to her rival, in breadth and depth she is little more than half the magnitude. It is in these differences of proportion that the disparity of tonnage is to be found. The "Great Eastern" is of enormously greater cubical capacity from her breadth and depth; though less tall and bulky of hull, the "City of Rome" is of great cargo capacity. Her length and beautiful lines suggest an impression of buoyant grace rather than of vast magnitude; yet her carrying power, notwithstanding her clipper bow and rounded stern, is greater than any other vessel afloat, except the "Great Eastern."

The fleet of the Inman Line is now (1882) composed of the following steamships: "City of Berlin," 5491 tons; "City of Richmond," 4607 tons; "City of Chester," 4566 tons; "City of Paris," 3500 tons; "City of Montreal," 4490 tons; "City of Brussels," 3775 tons; "City of New York," 3500 tons, which leave New York for Liverpool Thursdays or Saturdays, and Liverpool for New York Tuesdays or Thursdays.

With the latest vessels added to the fleets of the Cunard, the Inman, the Guion, and the Anchor Companies, it is possible to gain an idea of the ocean ships of the future. So far as size, speed, and comfort are concerned, these are as much in advance of the Atlantic liners of which we were so proud a quarter of a century ago as those were improvements on the earliest specimens of river passenger steamers. A great point was thought to be reached when the Cunard Company built the "Scotia" and the "Persia," or when the Inman Company became possessed of the "City of Glasgow;" but the finest of these steamers was not much above half the size of the "Servia" or the "City of Rome," whilst its engine-power was comparatively infinitesimal. No better illustration of the changes that have taken place in our ocean fleet could be given than a reference to the statistics bearing on the size of some of the early and some of the latest Atlantic liners. The Cunarder "Scotia," which was launched on the Clyde

in 1862, and was then considered the best specimen of her type, measured 379 feet in length, and had a breadth of 47 feet 8 inches, and a depth of 30 feet 5 inches. Her tonnage was 3871, and she was fitted with side-lever engines indicating 1000 horse-power. The "City of Glasgow," belonging to the Inman Company some years earlier, measured 277 feet long by 32 feet 7 inches broad, and 24 feet 7 inches deep. She was 1600 tons burden, and her engines were 380 horse-power. According to popular theory, the limits of practicable ship-building were reached when the "City of Berlin," five years ago, was introduced into the Inman fleet, she being then the largest vessel afloat (excepting the "Great Eastern"), and it being assumed finality had been reached in the magnitude of ocean-going steamers. Her measurements, in contrast with the pioneer of the service, testify to the progress which twenty-five years have witnessed in the development of steam navigation. Her length is 520 feet; breadth, 44 feet; depth to spar-deck, 37 feet; and her gross measurement 5481 tons. Her engine-power being 900 horse-power nominal, but capable of working up to 4800 horse-power indicated. Compare these figures with the dimensions of the "Servia" or the "City of Rome." The "Servia" has a length of 530 feet, a beam of 52 feet, a depth of 41 feet, a carrying capacity of at least 8500 tons, and is fitted with engines calculated to develop an indicated horse-power of 10,500 tons. The "City of Rome" is: Length, 586 feet; breadth, 52 feet 3 inches; depth, 37 feet; tonnage upward of 8000; and engine-power, 10,000. These facts are striking, but they fail to exhaust the comparisons which might be drawn between the vessels formerly engaged in the ocean traffic and the ships which are taking their place. Those who inspect the "Servia" or the "City of Rome" will become aware of an untold number of ingenious contrivances by which the comfort and safety of the passengers are now assured. The vessel of the future is not only a model of speed and of large cargo capacity, it also is a model of luxury.

Where, it may be asked, is this peaceful rivalry in the production of big ships to stop? Are ship-builders and ship-owners to go on increasing the size of the ocean-liners until they rival the "Great Eastern"? It is impossible to place any limit on such an enterprise; but it may safely be taken for granted that if ships of the dimensions of the "Great Eastern" become necessary, the errors which have made her failure conspicuous will be avoided. It is evident if Mr. Brunel, in building that vessel, could have adopted the principle of the compound engine, her fate might have been different. Instead of being under the necessity of putting the great ship up to auction after a by no means brilliant career, the share-holders might be enjoying the profits which are to be reaped in ocean transport. The danger is that in the race for the possession of huge floating palaces the steamship

companies may outrun the wants of travelers. If the ocean fleets of the future are to be composed of such vessels, an enormous increase of the traveling public will be essential to the continued prosperity of the industry. Any improvement in the facilities with which a transatlantic voyage can be made is sure to bring its own reward. The time when ocean travel was attended with misgivings, or was a luxury reserved for men of wealth and leisure, has passed. With the appearance of ships that will traverse the Atlantic in less than a week, a holiday trip to Europe may be as cheap as restorative. The president of the Scotch Engineers' and Ship-builders' Society recently declared that in a few years "we shall have steamships starting from each side of the Atlantic every morning, noon, and night, and arriving on the opposite shores with as much regularity as our present express railway trains arrive at the termination of a journey of four or five hundred miles."

In passenger accommodations the ships of the Inman Line are superior to most Clyde-built ships, and their design shows an inclination to break from the restrictive and uninventive habit which is said to hamper the British ship-builder. "Give an English carpenter a certain space in an unfinished ship, and tell him to fit it up as, for instance, a chart-room," a gentleman connected with one of the lines recently said, "and he will repeat exactly what he did in fitting up the previous ships, without stopping a moment to consider if some change is not desirable and possible. An American carpenter, on the contrary," this critic, who was an Englishman, continued, "will rack his brains for improvements, and the ship he fits up to-day is sure to be more comfortable than the one he fitted up yesterday."

The following vessels have been bought and built or have passed through the Inman Company's hands since its establishment in 1850:

Name.	Built.	Length.	Breadth.	Depth.	Tonnage. Gross.	Net.	Name.	Built.	Length.	Breadth.	Depth.	Tonnage. Gross.	Net.
City of Rome*	1881	586	52	37	8415	...	City of Boston	1864	313	39	26	2213	1649
City of Berlin	1874	489	45	36	5491	2957	Ætna‡		309	37	27	2190	1564
City of Richmond	1873	450	44	35	4607	2824	City of Dublin§		318	36	26	1999	1548
City of Chester	1873	444	44	35	4566	2713	Edinburgh‖		300	40	25	2197	1494
City of Montreal	1872	419	44	34	4489	2939	City of Philadelphia¶	1854	294	39	26	2168	1648
City of Brussels	1869	390	41	35	3775	2434	Glasgow		262	36	25	1962	1152
City of New York (enlarged)	1865	375	40	33	3499	2280	Vigo**		270	35	25	1953	1250
City of Paris	1866	398	41	26	3081	1975	City of Manchester††	1851	262	36	25	1906	1296
City of London	1863	374	41	26	2765	1880	Kangaroo‖		257	36	27	1719	1169
City of Brooklyn	1869	354	43	27	2911	1980	City of Glasgow¶	1850	227	33	25	1609	1087
City of Washington	1853	358	40	26	2870	1951	Nemesis		353	42	28	2717	1587
City of Bristol	1860	349	38	27	2655	1805	City of Cork††		265	33	26	1547	1082
City of Antwerp	1867	332	39	26	2391	1626	City of Halifax§		204	30	18	770	523
City of Limerick	1863	331	34	30	2536	1724	City of Durham§	1865	201	29	17	697	538
City of New York	1865	326	40	28	2360	1679	Bosphorus	1856	174	24	15	448	333
City of Baltimore†	1854	326	39	26	2472	1774	Hercules	1856	122	23	10	211	174
							Ajax	1856	108	23	9	163	133

* Returned to the builders as not fulfilling the contract, and since transferred to the Anchor Line, October, 1882.

† Sold March, 1874, and now running between Liverpool and Bombay.

‡ Purchased from Cunard Company. § Sold 1872. ‖ Sold 1869.

¶ Lost 1854. ** Sold 1861. †† Sold 1871.

The present fleet of the transatlantic steamers of the Inman Line are:

Name.	Built.	Gross Tons.	Name.	Built.	Gross Tons.
City of Berlin	1874	5491	City of Montreal . .	1872	4490
City of Richmond . .	1873	4607	City of Brussels. . .	1869	3775
City of Chester . . .	1873	4566	City of New York .	1865	3500
City of Paris	1865	3091	City of Rome. . . .	1881	8415

1851.—The Messageries Maritimes.—Much the largest maritime undertaking engaged in the trade of the Mediterranean and elsewhere is that of the Messageries Maritimes, formerly the Messageries Imperiales, monopolizing, as it does, nearly the whole of the steam tonnage of France. Indeed, apart from the vessels owned by this company, and one or two highly subsidized, the French may be said to have no steamers. In 1873 the whole steam tonnage of France amounted to one hundred and eighty-five thousand one hundred and sixty-five tons net register, and in 1875 the gross tonnage of the fleet of Messageries Maritimes was one hundred and twenty-four thousand nine hundred and seventy-six tons. The Messageries Maritimes is a pure creation of the government, raised with the greatest care from its infancy, and maintained by large grants from the public purse. Previously to 1851 the company had been chiefly engaged as carriers by land, and was under contract for the conveyance of the mails throughout a considerable portion of France. In July, 1851, the company entered upon its first over-sea contract for the conveyance of the French mails to Italy, the Levant, Greece, Egypt, and Syria, and it 1852 added to their service the principal ports of Greece and Salonica.

In 1854 the managers contracted for the transport of all troops and military stores between France and Algeria, besides the conveyance of the mails, and having increased their fleet to meet the requirements of the Crimean campaign, were in 1855 enabled to open between Marseilles, Civita Vecchia, and Naples a direct weekly line of steamers, independently of the postal service. After the close of the Crimean war, in 1856, the directors employed their disposable vessels in increasing the frequency of services to Algeria, and in establishing a postal service between Marseilles and the ports of the Danube and along the east coast of the Black Sea. In 1857 they entered into arrangements for the conveyance of the French mails between Bordeaux, the Brazils, and the La Plata. At that time the fleet of the company had reached fifty-four ships of eighty thousand eight hundred and seventy-five tons and fifteen thousand two hundred and forty horse-power, and they obtained from their government in 1861 a contract for the conveyance of the French mails to India and China. In

1871 their fleet, measuring one hundred and thirty-seven thousand three hundred and thirty-four tons, of twenty thousand eight hundred and eighty-five horse-power, performed service on the India and China routes of two hundred and thirty thousand one hundred and thirty-five French leagues; on the Mediterranean and Black Seas, one hundred and fifty-three thousand four hundred and seventy-eight; and on the Brazilian, fifty thousand and four. In all, four hundred and twenty-three thousand six hundred and seven leagues annually, independently of various extra services. Since then their Brazilian and La Plata lines have been doubled. At the first their vessels were built in England, but the company now possesses large establishments of its own, where they construct screw steamers of iron of the largest size. The ships of the Messageries Maritimes, like those of their great competitors for the trade of the East, the Peninsular and Oriental Company, now pass through the Suez Canal.[6]

1855.—THE HAMBURG-AMERICAN PACKET COMPANY.—The Hamburg-American Packet Company, which has now a weekly service between New York and Hamburg, touching at Havre on the western trips and at Plymouth and Cherbourg on the eastern, was established in 1847 at Hamburg, its first vessels being first-class sailing-ships. Mr. Adolf Godeffroy, of Hamburg, elected president of the company at its formation, still retains that responsible position. Its ships, which were built expressly for its service, had excellent cabin accommodations, and quarters in the steerage for emigrants even superior to anything that had previously been offered to that class, and the new line met a want that had for some time existed, supplying direct and first-class accommodation for travelers between Germany and the United States. The first two vessels were the "Deutschland" and the "Nordamerica," which came to New York first in 1848, and were followed in succession by the "Elbe," "Rhein," "Oder," "Donau," "Alair," "Weser," and "Neckar;" and while sailing-ships were the best means of transport between the two countries, the vessels of this line were not surpassed by any others until by the famous American lines of sailing-ships between New York and Liverpool.

The introduction of lines of screw steamers, however, between Liverpool and New York, and their keen competition for the German and French emigrants, convinced the directors that if this line desired to retain its supremacy it must avail itself of the most approved method of transport, and, foreseeing that steam must inevitably supersede canvas as a method of propulsion for sea-going vessels, measures were taken to increase the capital of the company, and Caird & Co.,

[6] The English Peninsular and Oriental Company, in 1875, for a service of 1,171,092 miles, received £430,000, while the Messageries Maritimes, for a service of 631,514 miles, or little more than half as much, received £399,838. It will be perceived that both were pretty heavily subsidized.

of Greenock, Scotland, were ordered to build two screw steamships. The result of this order was the launching in 1855 of the "Hammonia" and the "Borussia." Just then, however, there was an active demand for transports sailing under a neutral flag, and the company chartered its two new steamers to the allied French and English governments, and they were sent to the Crimea. Their charters expired in the spring of 1856, and on the 1st of June in that year the "Borussia" left Hamburg for New York, arriving here on the 16th of June, she being really the pioneer of the present line, for the old sailing-packets were soon all replaced by steamers. The "Hammonia" left Hamburg on the 1st of July, and from that time a monthly steam service was maintained. The new ships were fine vessels, ably commanded and officered. Close attention was given by the company's agents on either side of the water to the proper working of the steward's department, and the line became a favorite from the start. The management of the company was already popular in connection with the sailing-vessels, and their adoption of a steam line in its stead was the cause of much gratification to those who had friends in Germany desiring to come to this country.

The Hamburg Company met with sufficient encouragement to induce them to double their steamers and increase the service from a monthly to a semi-monthly one, and in 1856 the "Bavaria" and the "Teutonia" were added to the fleet. They were built at Greenock, and were 2273 and 2034 tons measurement respectively. Next year was a year of panic and great commercial depression, and the new enterprise of the Hamburg Company had to bear its share of the general disaster; nevertheless, in this year another new steamer was added, the "Saxonia," of 2404 tons. All the old sailing-ships were now sold off as fast as practicable, and the line became a steam line solely.

Although their steamers were as fast as any afloat and were noted for their excellence as sea-boats, the aim of the management was to secure regularity of passage and perfect safety rather than great speed. No racing passages were, therefore, ever allowed.

In 1861 the service was again increased, a steamer being dispatched from New York every Saturday. This change had been contemplated for some time, but was hastened by the charter of the Vanderbilt steamers to the United States government, and the United States mails were given to the Hamburg Company in addition to the direct German mail, which it had carried from the first. This extra service necessitated the addition of more steamers, and in 1863 the "Germania" was built by the Messrs. Caird & Co., at Greenock, followed the next year by the "Allemannia," built by Messrs. Day & Co. at Southampton.

In 1867 the first steamer "Hammonia" was sold, and her name changed to the "Belgian," and the Hamburg Company built a new

steamer "Hammonia" at Greenock. This steamer was 300 feet long, 40 feet beam, and 33 feet deep, and registered 2967 tons. The "Cimbria," of about the same size, was also built in 1867. Next year the "Holsatia" and "Westphalia" were built, being larger vessels than either of the previous steamers, the "Holsatia" being 3134 and the "Westphalia" 3500 tons. In 1869 the "Silesia," of 3156 tons, was added, and in 1870 the "Thuringia" was launched at Greenock.

The older steamers were now withdrawn from the New York Line, and a new line was established by this company between Hamburg and New Orleans, and an attempt made to maintain a service from Hamburg to the West Indies and Aspinwall. Here it came into keen competition with the North German Lloyd, and as there was not sufficient business for both, the two companies finally agreed that the North German Lloyd should have the New Orleans Line; and the Hamburg Line kept the West India service, with Aspinwall as the final port of destination.

The Franco-German War, in 1870, caused an interruption of the Hamburg Company's service for three months, after which the weekly service to New York was resumed. In 1872 the "Frisia" was built at Greenock. In 1873 the "Pomerania" was added from the same builders, and in 1874 the "Suevia." This, the last steamer built by the Hamburg Line, is the largest. She is 360 feet long, 41 feet beam, and 26 feet deep, and registers 3624 tons. Like all the other boats, she is brig-rigged and is propelled by two compound inverted direct-acting engines fitted with surface condensers. Her cylinders are 48 and 80 inches respectively in diameter, with 5 feet stroke of piston. She is divided into compartments by seven water-tight bulkheads, and is a first-class vessel, having no superior in the ocean service. Below, her arrangements for passengers are on the most liberal scale, her rooms for cabin passengers being of extra size and well ventilated, while the quarters for steerage passengers are convenient and commodious. Her great power and fine model insured a regularity and rapidity of passage which has never been interrupted.

The years which immediately followed the building of this steamer were years of reverse to the Hamburg Company. The panic of 1873 in this country had checked emigration, and in addition to this the establishment of the Eagle Line between New York and Hamburg caused a competition which was ruinous. With the decrease in the number of passengers came, of course, a surplus of freight-room, and freights from all European ports fell greatly in consequence. All these causes were felt so severely by the Hamburg-American Packet Company that in 1875, for its own salvation, it was obliged to buy up the floating property of the Eagle Line, which forthwith went into liquidation. By this operation the steamers "Herder," "Lessing," "Gellert," and "Wieland" were added to the New York Line. These

were all very fine steamers, built at Glasgow expressly for the Eagle Line, and would have been a great acquisition to the Hamburg Line if they had not been too much in the nature of too much of a good thing. They were about 3500 tons each; the "Herder" was built in 1873; the "Lessing" and "Wieland" in 1874; and the "Gellert" in 1875. Still, although the company was saddled with a surplus of steamers, the vexatious opposition was removed, and the New York service again became profitable. The threatened war between Russia and England in 1878 enabled the Hamburg Company to dispose of some of its surplus steamers, and the "Holsatia," "Hammonia," and "Thuringia" were sold to the Russian government.

The fleet of the Hamburg-American Packet Company in 1882 consists of twenty-four ocean steamships,—viz., "Albingia," "Allemannia," "Bavaria," "Bohemia," "Borussia," "Cimbria," "Cyclop," "Frisia," "Gellert," "Hammonia," "Herder," "Holsatia," "Lessing," "Lotharingia," "Rhenania," "Rugia," "Saxonia," "Silesia," "Suevia," "Teutonia," "Thuringia," "Vandalia," "Westphalia," "Wieland,"—besides a number of smaller steamers employed as feeders for the West India Line and elsewhere, and a large number of river passenger steamers, tugboats, lighters, floating steam-winches, steam-sloops, etc., which are necessary accessories to so large a service.

The Anchor Line, 1856.—Some fifty years ago four small Scotch boys started from the Clyde in little smacks, then served consecutively in schooners, brigs, barks, ships, and steamers, until conversant with every detail connected with all these types of vessels; with knowledge acquired and sterling integrity, and practicing economy, they grew up to manhood, and saw attempts made to establish steam traffic between Glasgow and the Western Continent, and as often saw them fail. In due time they banded together, and these little Scotch boys became the well-known firm of "Handyside & Henderson," of Glasgow, the originators of the "Anchor Line." Their first efforts were in small sailing-vessels in the Mediterranean fruit trade, and they finally purchased the steamer "Inez de Castro" and another small craft. They then altered the ship "John Bell" into an auxiliary steamer, and another sailing-ship, the "Tempest," in the same manner, and with these two vessels inaugurated the *Anchor Line*. The story of the "Tempest," the pioneer of this line, is soon told: "*The good die young.*" She was lost on her second return trip.

The Anchor Line came into existence, with these two converted vessels, in 1856, and as early as 1872 seventeen steamships had been constructed for its service between New York and Glasgow, besides thirty steamships for its service in the Mediterranean. At the present time (1882) steamships of the line, carrying the United States mail, sail from New York every Saturday, calling at Londonderry on the voyage to Glasgow, and from Glasgow every Thursday, also from London

every Saturday, sailing the same day of the week from New York for London. There is also a branch of this line sailing between Barrow-in-Furness (touching at Dublin) and New York about once a fortnight. For several years the company applied its energies in developing the Peninsular and Mediterranean branch of their service. Steamships of this line sail from Glasgow every fourteen days for Lisbon, Gibraltar, Genoa, Leghorn, Naples, Messina, and Palermo. In 1863 they determined to vigorously prosecute the Glasgow and New York trade, and built the "Caledonia" and the "Britannia." In 1868–70 serious disasters befell the company, and in a few months they chronicled the losses of the "Hibernia," "United Kingdom," and "Cambria."

On the arrival of the "Iowa" at New York, June 29, 1867, the dwarfs, Tom Thumb and wife and Commodore Nutt and wife, who were passengers, united in a letter of thanks for the care and attention they had received.

The company flag which gives name to the line is a white burgee, on which is borne a red anchor horizontally.

On the 14th of August, 1872, the owners and agents of the Anchor Line signalized the advent of their latest and at that time best steamer, the "California," an iron screw steamship of 3208 gross tons, 361.5 feet length, 40.5 feet beam, and a working horse-power of 1047, by an excursion to Long Branch. The company numbered four hundred, and after an absence of eight hours returned to New York City. The band of the Seventh Regiment and two bagpipers in Highland costume entertained the company, and the whole four hundred guests were at *one time* seated at tables spread between decks, provided with every delicacy that the markets of the Old and the New World afforded.

A passenger describing the "California" says, "The grand saloon, forty-five feet long by forty wide, is finished in a scale of magnificence which is carried out in every part of the floating palace. The paneling is of polished oak, interlaid with rich dog- and white-wood, adorned with rich carving and gold. The smoking-saloon is luxuriously fitted, and painted in a tint of sea-green, and silver-plated chandeliers drop from the ceiling. Each state-room has its electric bell. Two large bath-rooms are on each side of the vessel. The ladies' boudoir is decorated in sea-green tints, dotted and striped in gold, with delicate birds perched in the centre of each broad panel. She has accommodations for one hundred and fifty first-class and nine hundred steerage passengers."

The present fleet of the Anchor Line is as follows; the names of the vessels are alphabetically arranged, and, with few exceptions, end in "*ia*:"

TRANSATLANTIC, PENINSULAR, MEDITERRANEAN, AND ORIENTAL STEAMSHIPS OF THE ANCHOR LINE IN 1882.[7]

Name.	Service.	Built.	Registered Tonnage.	Name.	Service.	Built.	Registered Tonnage.
Acadia	Med. and Or.	1866	1081	Ethiopia	Transatlantic	1873	4004
Alexandria	"	1870	1629	Furnessia	"	1881	5496
Alsatia	"	1876	3000	Galatia	Med. and Or.		3125
Anchoria	Transatlantic	1875	4176	Hesperia	"		3125
Armenia	Med. and Or.		3380	Hispania	"		3380
Assyria	"	1871	1623	India	"	1869	2289
Australia	"	1870	2243	Ischia	"		3125
Belgravia	"		5000	Italia	"	1872	2245
Britannia	"	1863	2200	Justitia	"		3125
Bolivia	Transatlantic	1873	4050	Macedonia	"		2272
Caledonia	Med. and Or.	1872	2125	Olympia	"	1872	2060
California	"	1872	3287	Roumania	"		3500
Castalia	"	1873	2200	Scandinavia	"	1865	1135
Circassia	Transatlantic		4200	Scotia	"	1866	1103
City of Rome	"			Sidonian	"	1870	1235
Columbia	Med. and Or.	1867	2000	Trinacria	"	1871	2107
Devonia	Transatlantic		4200	Tyrian	"	1869	1038
Dorion	Med. and Or.	1868	1038	Utopia	"	1873	2731
Elysia	"	1873	2733	Victoria	"	1872	3242

To obviate the risk of collision, lessen the dangers of navigation, and insure fine weather, the owners of the Anchor Line have adopted Maury's system of separate steam lane routes for their Atlantic steamships, whereby the most southerly route practicable is regularly maintained throughout all seasons of the year.

The "Furnessia," the latest addition to the fleet, the "City of Rome" excepted, was built at Barrow-in-Furness, Lancashire, England, and was, when launched, the largest vessel ever built in England save the "Great Eastern." She has since been surpassed by the "City of Rome," "Servia," etc. Her dimensions are: Length, 445 feet; beam, 44 feet 6 inches; depth of hold, 34 feet 6 inches; her registered tonnage is 5496; gross tonnage, 6500 tons; and her displacement when drawing twenty-six feet of water, 9900 tons. She is brig-rigged, and has two funnels. Her engines are 3500 horse-power. The diameter of the propeller is 20 feet 6 inches. The engines, fitted with Rogers's patent exhauster, have special fire-engines and emergency pumps for pumping in case of collision or accident. She has steam steering-gear, winches, cranes, etc., and her hull is divided into nine water-tight compartments.

The promenade-deck, which stretches from nearly amidships to the stern of the steamer, is surmounted by a deck-house, of which one-half is utilized as a comfortable smoking-room. Opposite the entrance to the smoking-room is a staircase which descends to the music- or drawing-room on the spar-deck. The walls of this music-room are lined with panels of walnut and satin-wood. The seats around the apartment are upholstered in brown morocco, and around the staircase lead-

[7] The date of building is given when known. Those whose date of building is not given have been built since 1873.

ing to the main-deck are ornamental boxes filled with exotic plants. It is also furnished with a Broadwood piano, a Mason & Hamlin organ, and a well-stocked library. A broad, airy corridor, lighted and ventilated by skylights at frequent intervals, leads from the music-room aft, on either side of which are state-rooms elegantly and comfortably fitted up, having two berths and a sofa in each. Descending from the music-room by a broad staircase, the dining-saloon is reached. The port-holes of this saloon are hid by window-frames with stained glass, and the carpets, curtains, and other accessories display the taste and elegance which are everywhere evinced.

The dining-saloon is heated by steam, furnished from two Baltimore heaters fitted into white marble mantels. A corridor, similar to that on the spar-deck, stretches from the main saloon aft, giving access on both sides to state-rooms, which are each fitted for the accommodation of four persons. There are two state-cabins furnished with special magnificence, which, in place of the ordinary berths elsewhere provided, are supplied with Parisian electro-plated bedsteads.

1857.—THE NORTH GERMAN LLOYD STEAMSHIP COMPANY was founded by a number of enterprising business men of the ancient and wealthy city of Bremen, a city belonging to the so-called Hansa-Bund, or commercial confederation of German free cities, whose merchants in the thirteenth century sent their ships out over the German Ocean and up the Baltic, and gave the first incentive to the trade of northern Europe, which they controlled for centuries. True to the traditions of their forefathers, the inaugurators of this new line of communication with the Western Hemisphere determined to offer to the public in place of the slow and uncertain sailing-vessels, by which all living and dead freight had been forwarded from the port of Bremen, a quick, safe, and commodious fleet of steamers.

The founders of the line were sensible that, in order to succeed in the new undertaking, it would be necessary to conduct the management with a jealous regard for the comfort, safety, and well-being of the passengers. They had to contend with the prejudice of many who were unable to comprehend the grand revolution in ocean transportation taking place, and who would not intrust their lives or goods on these new-fangled arrangements driven by steam and moved by complicated machinery, liable, as they believed, to continual derangement. Founded on the maxim that that company serves its own interest best that serves the public best, the line, in spite of the opposition of early years and the eager competition of later days, grew and prospered. Up to December, 1878, the steamers of this company had made two thousand five hundred and fourteen voyages across the Atlantic, and carried more than six hundred and eighty thousand persons over the ocean. Of this number more than one hundred and eight thousand were cabin passengers, all of whom were conducted safely and well

over its stormy sea. This is a record few steamship lines can equal, and that hardly any can excel.

The transatlantic steamers of this line, thirty in number, except four built on the Humber, were all built on the Clyde. They are iron screw steamers with flush decks, built according to the English Lloyd rule. Their length on an average is 360 feet; breadth of beam, 40 feet; and depth, 32 feet, the length being about nine times the breadth. Tonnage, about 3500 tons. They are provided with iron decks, and seven water-tight compartments. Their draught without cargo is 17 feet, and with cargo 21 feet. They are brig-rigged, spreading 14,000 square feet of sail, carry ten iron life-boats, 28 feet long, and the other usual appliances for saving life. The engines of nearly all of these ships are of the compound type. The screws are of iron, with four blades about 15 feet in diameter, and with a pitch of about 24 feet. The large steamers have twelve main boilers, with two furnaces and one auxiliary, and the average speed of the mail steamers,—viz., "Neckar," "Oder," "Mosel," "Rhein," "Main," "Donau," "Weser," and "America,"—plying between Bremen and New York, is stated as fourteen and one-half knots per hour.

A new steamer, called the "Elbe," has been built on the Clyde and placed on the line between Bremen, Southampton, and New York.

The "Elbe" is of 5000 tons measurement, and her dimensions are 420 feet in length by 45 feet breadth of beam, and 40 feet depth of hold. She is provided with seven water-tight compartments, and fitted with four masts, the fore- and mainmasts square-rigged, and the two mizzen-masts schooner-rigged. The upper-deck fore and aft is covered over. She has a hurricane-deck amidships 180 feet long, as a promenade-deck for first-cabin passengers, on which the ladies' cabin is placed near the mainmast.

The "Elbe" has the most approved steam steering-gear, operated from the wheel-house, which is placed under the bridge and at the forward end of the hurricane-deck.

Her engines are of 6000 horse-power, indicated, and consist of three cylinders, the high-pressure of 60 inches diameter, and the two low-pressure of 85 inches diameter each, and guaranteed to obtain a speed of sixteen knots an hour. The crew is 160 all told.

The "Mosel," from Southampton for New York, went on shore near the Lizard in a thick fog and calm, August 9, 1882, and became a total loss, breaking up about September 4. Her six or seven hundred passengers and the mails were landed by the steamer "Rosetta," of Falmouth. Her dimensions were: Length, 365 feet; beam, 40 feet; depth of hold, 35 feet. Her gross tonnage was 3500, and her bunkers carried 1000 tons of coal. She was full brig-rigged, had eight metallic life-boats and two gigs, and her decks were of East India teak. Her original machinery was powerful and fine, consisting

of inverted direct-acting engines of 800 horse-power, nominal, with the capacity of working up to 2500. She had two cylinders, 72 inches in diameter, with 5 feet stroke. The boilers were six in number, with four furnaces to each. The "Mosel" was finely furnished throughout, and could accommodate 90 first-class, 126 second-class, and 680 steerage passengers, and she cost a little over $500,000. She was valued at $425,000. In September, 1881, she was repaired and refitted at an expense of $125,000. Her hurricane-decks and turtle-backs were renewed, and the second cabin was removed to the main-deck forward. New engines were placed in her, greatly exceeding in power her old ones. In 1875 a memorable crime was committed by a passenger on the "Mosel" while she was lying in Bremerhaven. A case of dynamite was exploded on the wharf, sixty-eight persons being killed and thirty-three severely wounded. The vessel was but little injured. The author of the catastrophe, W. H. Thomassen, who had been a blockade-runner during the American rebellion, but had latterly lived in Germany, was tried and legally put to death.

THE LEYLAND LINE.—This line has a large fleet, all of which, except the Boston steamships, run to Mediterranean ports, for which there are four departures a week. The steamers of this line bear names ending with the letter "n," and have the further peculiarity of being ranged in classes according to the letters with which their names begin, the names of sister ships always beginning with the same letter. Thus, the steamers of the Boston service are always spoken of as the "B's" and the "I's,"—the "Bavarian," the "Batavian," and the "Bohemian," and the "Istrien," the "Illyrien," and the "Iberien."

The "Flavian," repaired in Boston, replaced the "Bohemian," lost, in the Boston service of the company. The disaster which overtook her obliged the giving up temporarily of a projected line to Baltimore. She is different from the regular boats of the line running to Boston, being smaller and shorter than the large four-masters, of lighter draught, and of greater beam in proportion to her length, which is 335 feet. She has only two masts. Her tonnage is about 1400 by measurement. She is finely fitted, and has comfortable quarters for officers and crew. She was built at Jarrow-on-Tyne, a name hardly known this side of the Atlantic, but which has the greatest iron ship-building yard in the world. It employs seven thousand men, and everything is done on the premises. The iron is taken from the company's mines three miles up the river, enters the yard as crude ore, and leaves it a complete steamship. The *coal is mined in the yard.* At Jarrow there are three monster steamers building specially for the Boston service of the Leyland Line, and they will probably begin running in the autumn of 1882. Two are called the "Virginian" and the "Valencian;" the third will have a name beginning with V. The three "V's" will be steamers of 5000 tons and about 500 feet long,

much larger than any of the present boats, but resembling them in build.

The steamer "Bohemian" was wrecked in Dunlough Bay, February 6, 1881. She sailed from Boston on January 27, 1881, for Liverpool, and went ashore on the Irish coast during a dreadful storm. Thirty-two of those on board were drowned, and twenty-one of the crew, including the second officer, were saved. Another survivor was seen on a rock, separated from the mainland, but all efforts to rescue him failed. Two life-boats were capsized in the attempt.

The "Bohemian" was fifteen years old, and had been on the Leyland Line five years.

1862.—THE COMPAGNIE GÉNÉRALE TRANSATLANTIQUE.—This company, established in 1862, maintains a regular line between Havre and New York. It receives a subsidy from the French government for its West India and New York and Havre lines; other independent services are not subsidized. In 1880 a contract was entered into between the company and the French government for its line between Marseilles, Algerian, and Tunisian ports, and a small subsidy granted.

The company has lately added to its lines a new weekly line from Marseilles to Genoa, Leghorn, Naples, Messina, Syracuse, Malta, etc.

The following table shows the *fleet* of the company, 1881:

FOR THE ATLANTIC.

	Tonnage.	Horse-power.
Amérique	4500	900
France	4500	900
Labrador	4500	900
Canada	4500	900
Saint-Germain	3650	850
Péreire	3300	900
Saint-Laurent	3400	900
Ville de Paris	3300	900
Lafayette	3400	800
Washington	3400	800
Olinde-Rodrigues	3000	660
Saint-Simon	3000	660
Ferdinand de Lesseps	3000	660
Ville de Marseille	3000	660
Ville de Bordeaux	2600	660
Ville de Brest	2600	660
Ville de Saint-Nazaire	2600	660
Colombie	2800	660
Caldera	2800	660
Salvador	900	250
Saint-Domingue	800	250
Venezuela	800	250
Alice	800	100
Caravelle	700	250
Colomba	600	200
Caraïbe	600	125
TUG.		
Belle Isle	150	100
TRANSPORT STEAMERS.		
Bixio	2280	250
Flachat	2280	250
Le Chatelier	2227	250
Fournel	2000	250
Clapeyron	1760	180
Provincia	1700	180
Martinique	1600	200
Picardie	1500	200

FOR THE MEDITERRANEAN.

	Tonnage.	Horse-power.
Moïse	1800	450
Saint-Augustin	1800	450
Isaac Péreire	1800	450
Abd-el-Kader	1800	450
Charles-Quint	1800	450
Ville de Madrid	1800	450
Ville de Barcelone	1800	450
Kléber	1800	450

FOR THE MEDITERRANEAN—*Continued.*

	Tonnage.	Horse-power.
Ville d'Oran . . .	1800	450
Ville de Bone . .	1800	450
Afrique	800	250
Ajaccio	800	250
Bastia	800	250
Corse	800	250
Immaculée-Conception	800	250
Lou-Cettori . . .	800	250
Maréchal Canrobert	800	250
Mohammed-el-Sadeck	800	250
Malvina	800	250
Manoubia	600	200
Ville de Tanger .	600	200
Dragut	500	150
Mustapha-ben-Ismaïl	500	150
La Valette	500	150
Insulaire	400	150
RESERVES.		
Guadeloupe . . .	1600	400
Désirade	1400	400
SHIPS BUILDING.		
Ville de Rome . .	1800	450
Ville de Naples . .	1800	450
Ville de New York . .	. .	. .

The "Ville de New York," now building at Barrow-in-Furness for the company, is to be the largest steamship that has entered the port of Havre. According to the plans, her length between perpendiculars will be 460 feet; depth of hold, from bottom of keel to spar-deck, 37 feet 6 inches. Her beam is to be proportioned with her draught, which cannot exceed 23 feet in depth on account of the bar or entrance on the river Seine, and its breadth is to be fifty feet. In her length she is to be divided into ten water-tight compartments, two of which will be occupied by the boilers, which can be separated in case of emergency. One-half of the boiler-power can be used without stopping the vessel, and will give a speed of almost eleven knots. A water-tight bottom, which is to extend her whole length, can also be used for ballasting the vessel and giving her uniform draught, and a system of pumps worked by steam will insure her speedy and adequate drainage. The "Ville de New York" will have four masts and two smoke-stacks. She will have all the latest improvements and most recently devised accommodations.

There are to be four decks and a promenade-deck extending alongside on top of the main-deck, and supported forward by stanchions. This one will be entirely reserved for the first- and second-class passengers. No sailors will be permitted on it, as all their work will be done on the deck below, which is also to be used by the third-class passengers. Forward and aft on the promenade-deck there are to be two turrets, which will contain the signal-fire and the double foot-bridge for the officers on watch. The pilot-house, which is to be fitted with steam stearing-gear, and the captain's house will be located here too. The arrangements for the crew will be such that every department will do its work without interfering with the passengers. The officers' rooms will be situated forward under cover, so as to be convenient to the bridge, where they have to be on watch, and the engineers' berths are

to be arranged around the engine-room, so that they may not be obliged to go on deck.

The first-class passengers' saloon and cabins will be in the centre of the vessel, forward of the machinery, where the pitching is felt least. Twenty-four of the cabins will contain single berths, and have sky-lights for admitting air in all weathers. All will be lighted by means of electricity. The second-class passengers are to be located aft of the machinery, and third-class at the end of the first-class cabins, between decks. Splendidly furnished dining-rooms, saloons, and reading-rooms will form one of the vessel's attractions, and there will be a system of baths and all arrangements likely to contribute to comfort.

The machinery will be compound, with cylinders set one above the other. Each of the three compound engines will have its own crank-shaft and condenser. The air and circulating pumps will be independent. The six cylinders will have a stroke of 5 feet 7 inches. The diameter of high-pressure cylinders will be 35½ inches, and that of the low-pressure cylinders 75 inches. The whole condensing surface will be 10,300 feet, and every one of the circulating pumps will be able to supply at full speed 250 gallons of water per second.

The boilers supplying the steam to the main engine will have in all 36 furnaces, with a fire surface of 21,600 square feet; besides, there will be a large donkey boiler, with two furnaces having 550 square feet of fire surface, for supplying steam to the hoisting engines, donkey-pumps, and other steam apparatus. The main boilers will carry a steam-pressure of 90 pounds per square inch, and the power of the engines, it is claimed, can be estimated at 7000 horse-power on trial, giving a speed of 16½ knots.

GEORGE H. PREBLE,
Rear-Admiral U.S.N.

(To be continued.)

AMONG OUR CONTEMPORARIES.

Of all the wealth of French military memoirs of the Napoleonic period lately published, Marbot ranks easily first, with those of Marshal Oudinot, Duke of Reggio, following close after. Marbot's memoirs have the advantage, in addition to a charming and easy style, of being written in the first person, while those of Oudinot are compiled from the notes of Madame la Maréchale, principally by Gaston Steiglar, with a preface by Costa de Beauregard.

Oudinot, the grenadier of grenadiers, the soldier who was called by his imperial master the "Bayard of the French army," and who had the luck to be wounded more times, perhaps, than any other of the marshals, presents, in his portrait, the clean-shaven face and features of an ideal professor,—say of belles-lettres or of chemistry,—and, somehow, inconsistent with the rich uniform and great feathered *chapeau* of a marshal of France.

Filled as the book is with incident and anecdote, we can find space for but one or two of the latter. His valet, Pils by name, an Alsatian, appears to have been a regular character, who had been picked up by Oudinot somewhere, and who became devotedly attached to his master, following him everywhere, and even into action, where, for fear of being scolded, he kept, as a rule, behind the large staff. These young officers, themselves devoted to the "Patron," as they called Oudinot, sympathized with the devoted servant, and allowed his presence during battles without remonstrance.

One day Pils, who was exposing himself as usual, in spite of the express command of the general to the contrary, had a horse killed under him.

Oudinot thought this an opportunity, once for all, to put a stop to Pils's soldiering. So he said to him, very severely, "You see you are getting my horses killed? What do you mean by it? Now, I absolutely forbid you to repeat this performance."

But at the very next battle the incorrigible Pils was there, in his master's rear. When the latter caught sight of him he said,—

"Well, didn't I forbid this?"

"Oh, my general! you need not find fault with me; *this* horse is my own; I spent every sou I had for him."

Pils had his way after this, and, indeed, became a very necessary person, for, knowing that his master was pretty regularly wounded in every affair, he carried a surgeon's case, with which he administered the first dressings. Besides that, having a great love of drawing, without having ever had lessons, he was accustomed, on the battle-field, to take a pencil and block and represent the field and the battle itself in comically inartistic but perfectly truthful lines.

Afterwards he was placed under the tuition of Horace Vernet, but it was found that he was unable to learn the first principles of art.

Another anecdote illustrates the remarkable relations of the French veteran soldier of that time with his superior officers.

During the congress at Erfurt, where so many kings and kinglets, and what Madame Oudinot calls "princelets," were assembled, Constantine of Russia—*vrai type de Cosaque*, physically and mentally—one morning asked permission to be present at an inspection and review of the grenadiers of the old guard. Oudinot, who was governor of Erfurt as well as commander of the guard, could not well refuse the grand duke, who was exceedingly interested in learning all he could about French military affairs.

The veterans were far from pleased at being turned out for inspection by a Russian, and *faisait la moue sous sa moustache.* When the ranks were opened, and the inspectors passed down behind the front rank, Oudinot, who wished everything to go off well, followed close at the elbow of the eccentric grand duke, who, acting as he would towards a soldier of his own army, in asking some question as to equipment, touched one of the "grognards" with his finger. The grenadier at once called out savagely,—

"Who's that touching me?"

"I did," said General Oudinot, quickly placing himself between the prince and the soldier.

"All right!" said the soldier, hearing the familiar voice, and once more coming to strict attention.

Each of the great persons assembled at Erfurt had, of course, to have sentinels before the doors of the houses in which they were quartered.

One day when Oudinot was making his rounds he was surprised, in passing the Grand Duke Constantine's door, to find no sentinel on post there. He was remarking on this to his accompanying aides when they heard a stentorian voice within the house giving words of command. The general at once dismounted, had himself announced to the grand duke, and found him, in most remarkable *negligé*, standing opposite to the sentinel, in the grand *salon*, and putting him through his exercise. At the moment that the general opened the door the grand duke called out "Fire!" and the ball went through the opposite partition.

"Mon Seigneur, what are you doing?" cried the astonished Oudinot.

"I am amusing myself."

"That may be; but, independently of the fact that you have rendered this sentinel liable to severe punishment, you have not considered that his piece was loaded, and that you have a neighbor."

"Oh, that's only my uncle, the king of Würtemberg; it will wake him up."

The king of Würtemberg *was* waked up, with a ball passing through his bedroom, and was naturally furious; but some sort of lame explanation was made, and the matter allowed to pass, without reference to supreme authority, much to Oudinot's relief.

Possibly the most important work yet evoked by our Civil War appeared in November last.

It is the first part of "The Story of the Civil War: a Concise Account of the War in the United States of America between 1861 and 1865. By John Codman Ropes. G. P. Putnam's Sons, New York and London."

Mr. Ropes's works upon the First Napoleon, the Campaign of Waterloo, and upon certain passages in our Civil War, such as "The Army under Pope," are not only well known, but are so appreciated as to have gained him Fellowships in historical and other learned societies, both at home and abroad. It is therefore with more than usual interest that we look for a work upon the Civil War under a manner of treatment which that tremendous conflict has not received, to our knowledge, up to this time.

Mr. Ropes says in his preface, "The task attempted in the following work is in certain respects a novel one. It is to write of the subjects treated from the stand-point of each of the contending parties.

"In my judgment the war should not be so depicted as to imply that the North and the South differed and quarreled about the same things. That was not the fact. The questions presented to the men of the North were not the same as those with which their Southern contemporaries had to deal.

"This might be very fully illustrated by referring to the relation which the institution of slavery bore to the people of the North, as compared with the relation to the people of the South; but into this subject the scope of our narrative will not allow us to go.

"I will illustrate what I mean by calling attention to the fact that the State held a totally different place in the political thought of the South from what it occupied in that of the North. Mr. Prescot, Assistant Secretary of State in Mr. Buchanan's administration, in his account of the discussions in the Cabinet in the autumn of 1860, gives a forcible picture of this fundamental difference when he is describing the position of his immediate chief, General Cass, then Secretary of State: 'Not recognizing any right in a State to secede except

as a revolutionary measure, he would have resisted the attempt at the commencement, and, as the sworn officer of the United States, he would have done his utmost to preserve its integrity. "I speak to Cobb," he would say, "and he tells me he is a Georgian; to Floyd, and he tells me he is a Virginian; to you, and you tell me you are a Carolinian. I am not a Michigander; I am a citizen of the United States."'

"Such radical differences as these actually existed among the representative statesmen of the country in the year 1860, however difficult it may be for the present generation to appreciate the fact. It is not possible to exaggerate the importance of these conceptions of political duty, for they directly affected the attitude of every man towards the questions of the day. If a man held that his State was his country, it was his duty, if he proposed to be a patriotic citizen, to serve under the flag of his State.

"This book is written with the strong conviction that neither the lapse of time nor the fortunate result of the war ought to prevent us from getting at the exact truth on any matter connected with its origin or incidents. There is no attempt to minimize the differences of opinion which separated the people of that time into two hostile camps. The best service that the historian can render is to set forth, as nearly as he can, the exact facts, taking account of all matters that justice requires should be weighed, and that a regard for truth demands should be clearly set forth."

The readers of the "Chronicles of Carter Barracks," which have appeared from time to time in the pages of this magazine, will be better prepared for the "wit and wisdom," or, we should rather say, "humor and wisdom," contained in the "Paper on Military Libraries," contributed by Colonel Closson, of the Fourth Artillery, to a late number of the *Journal of the Military Service Institution.*

One of his illustrations of the necessity for a military man at this stage of the world's progress knowing "everything of something and something of everything" runs as follows:

"Take, for instance, Moreau. It is written of him that he was remarkable for his devotion to military works and memoirs, consecrating the time allowed for recreation to such studies as would prepare him for the field. He was found late and early at his table surrounded by his books, his maps, and his plans, reading in four months more military treatises than had been written in four centuries, and it is noted of him, what is most indispensable, that he possessed not only a strong appetite for knowledge, but strong powers of digestion, which made his improvement proportionate to his application. Hohenlinden was one result, better known, too, for Campbell's poetry than for Moreau's strategy, superior as it was. There was in him a promise of a peer to

Napoleon until he was put out of the way, not perhaps to the unhappiness of his rival.

"What was true of Moreau is true of almost every successful soldier, and, no doubt, is equally true of some very successful—failures. Simple study of itself brings no reward in any profession, least of all in the emergencies and surprises of war. But it lays in supplies, of which there must be the right and prompt use on occasion. A man might starve in the market-place if he could neither secure the food around him nor assimilate it when secured. If, on the one hand, books do not make the general, very few real generals are made without books."

A curious story is told by the *Army and Navy Gazette*, as follows: "According to the French recruiting law the only son of a widow, or the eldest son of a widow, is mercifully spared from doing military service. There is also a provision that a grandson who is the only support of a widowed grandmother shall be similarly exempted. The law, however, has not provided for the case of a great-grandson, who is the only support of a widowed great-grandmother. A case of the kind has just occurred, it is believed for the first time. Among the conscripts this year is a young Parisian who lives with his great-grandmother, aged one hundred years, who is dependent upon him. The military anthorities have had some difficulty in deciding what course they should take in face of such an unforeseen occurrence. Finally, they have decided that the great-grandmother is, in the eye of the law, the same as the grandmother, and the young man is exempt."

About the same time the French Chamber had a great excitement over the question as to whether a deputy is exempt from military service. Such cases rarely occur, for men have generally served their time years before they are elected members of the legislative body. M. Mirman, however, the Socialist Deputy for Rheims, was excused from military service by engaging, on his leaving the training college, to spend ten years in teaching, but last year he threw up his professorship, and was elected a Deputy. His election was necessarily pronounced valid by the Chamber, but he had plainly forfeited his title to exemption from serving in the army, and so, at the age of twenty-nine, he was summoned to join his regiment. Thereupon the Radicals and Socialists raised a great clamor, and insisted that a Deputy should be exempt from all duties and obligations other than parliamentary. But M. Dupuy, the President of the Chamber of Deputies, decided that military duties, though not cancelling an election mandate, suspended it, urging that this was the only way to keep politics out of the army, for a man could not be allowed to be one day in the army and another day to come and, perhaps,

question the Minister of War in the Chamber. The Minister of War, General Mercier, naturally took the same view.

The Radicals and Socialists declared that if M. Mirman had not been a Socialist the War Office would have excused him. Even General Jung, a Moderate Republican, contended that M. Mirman's military obligations should be suspended as long as he was a Deputy; while M. Brisson demanded, amid thunders of applause, whether the Minister of War was to override universal suffrage.

The end of it was that the Chamber sustained the decision of the government by 307 votes to 215,—and so M. Mirman had to shoulder his musket and learn the goose-step.

Colonel Knollys, of the Royal Artillery, had an article in a late number of *Blackwood's Magazine* upon "China's Reputation-Bubble," in which he says,—

"I had occasional opportunities of personally scrutinizing small bodies of Chinese troops. Their arms were of various patterns, possessing a uniformity only of such dirt, rust, and deficiency as to lead to the suspicion that one-half were incapable of being fired, while their equipment and marching, their drill and demeanor, were suggestive of a show at a transpontine pantomime. Captain Butler, superintendent of the Lung Hwa powder factory, a Prussian officer free from Prussian arrogance, informed me that the Chinese government, having heard of the efficiency of German drill, had requested him to undertake, as an additional duty, the drilling of an infantry battalion, and the following was the gist of his statement to me:

"'I explained, but without the slightest success, that the undertaking would be a waste of their money and my time. As soon as I appear within the fort the mandarin colonel and his officers—at all times thoroughly idle—swagger off with offended dignity. The non-commissioned officers—at all times thoroughly useless—squat on the ground and go to sleep, unless I constantly bully them. I make it a point of principle never to allow any of the men to be thrashed except by myself. But the necessity for this operation is so frequent that a great part of my time is spent in bambooing the sergeants, and the balance available for drill is small.' He added that one of the greatest impediments to their efficient field-firing was their incurable habit of shutting both eyes just before pulling the trigger. Moreover, their rifles were kept in so filthy a condition that a large proportion of the locks became jammed, and the delivery of fire was habitually doubtful. He was of opinion that the men would never be worth one farthing unless they were exclusively officered by Europeans.

"To state that the professional knowledge of the officers is at the lowest ebb," Colonel Knollys says, "would be to lead to a misconception,

because their professional knowledge is limited to skill in perpetrating a maximum of evil and fraud. Generals, commanding officers, subordinate officers, and non-commissioned officers, from the very highest to the very lowest, their one object is to carry out a scientifically graduated system of cheating."

The ceremony of nailing to the staffs one hundred and thirty-two flags of the Fourth Battalion added to the German infantry regiments by the law of 1892 was performed by the emperor in the Ruhmeshalle, or Hall of Fame, of the arsenal in Berlin. As it requires a good many nails, driven in close to each other, the emperor would have a rather serious job if he drove them all himself. But the way in which it is done is as follows: the emperor drives one nail in each staff; then the members of the imperial family, the court officials, generals in attendance, and so forth, each take a crack at it, and so, by a division of labor, the task is accomplished. Each flag and staff has a separate table or stand. The flags of the troops of the guard are made of very rich brocade, and those of the line regiments of heavy silk. The Prussian flags are embroidered, while the Baden colors are painted. The ground color of these flags is white, red, yellow, blue, or green, according to the color of the shoulder-straps worn by the men of the different battalions. Some of the Prussian flags bear in the centre the Prussian eagle embroidered in black silk, and surrounded by a laurel wreath, with the letters W. R. and the crown in each of the four corners. Nearly all the embroidery is of gold and silver, and each flag represents a value of two hundred dollars. On the day after the ceremony of nailing the colors were formally consecrated and presented. "The emperor, addressing the troops after the ceremony, declared the army to be the only firm foundation on which the state can rest, and called on the troops to take over with the new standards the obligation of unquestioning obedience to their war-lord, whether against internal or external foes."

L'Illustration has a picture of the ceremony of nailing the flags, which, we fancy, is peculiar to Germany.

An account of flag-ceremonies of a curious nature was lately given by the *Graphic* as occurring in India, where, it appears, the Second (Queen's Own) Native Infantry have an annual regimental *fête*, which is called Nishan Pujal. At this *fête* the colors are consecrated or blessed according to the Hindu rites. The native officers, assisted by the regimental priests, perform the various ceremonies, reading passages out of their book, reciting religious incantations, and finally lighting a fire prepared with incense and camphor.

The colors of the regiment, carried by their native officers, are then marched up to the fire in front of the regimental tent, and the subadar major, a senior native officer, taking some incense in a gold plate, wafts it round each color and places a garland of white flowers on each. He also ties a gold cord round the waist of each native officer and man of the color party. The colors are then escorted by a company in full uniform to the head of the rest of the regiment, who are in ordinary Hindustani clothes. They march past headed by the band of the regiment, after which the officers are at home to their friends.

The regiment is one of the few remaining in the Indian service with three colors. The third, the centre one, is of a buff color, and was gained in 1801, under Lord Lake.

The *Army and Navy Gazette* says, "It is well known that secret agents play an important part in Russian policy. We have seen numberless instances in the past of the cunningly-devised means by which Russia works towards her ends, but we are too ready to forget or disregard them. British soldiers have never taken kindly to espionage, although it is often absolutely necessary to success, and nearly always places valuable information at the disposal of a commander. The time seems, however, to have arrived when it will be no longer possible to treat this matter in a casual manner, or to exclude it from a place among subjects of systematic study. A Russian staff officer has published a work in which the science and art of obtaining information secretly are elaborately set forth for the benefit of his brother officers. Espionage is regarded by this author as a legitimate means of increasing the power of an army. It is the development of an intelligence department in the provinces of detection and dissimulation, and if 'knowledge is power' there is something to be said in favor of his contention. 'The eyes and ears of an army' can thus be materially assisted. What we have to guard against at this moment is the insidious work of Russian agents on and within our frontiers in the East. Whether officers should be put through a course of espionage we will not venture to say positively, but they should certainly learn the sportsman's habit of 'marking his country,' and of keenly observing and intelligently interpreting all the signs by which they are surrounded."

The same service paper in an editorial, perhaps inspired by the foregoing, remarks, "Nationalities are stronger than those who govern them, be the latter autocrats, constitutional or unconstitutional monarchs, kings, or presidents. The Czar, Autocrat of all the Russias, is one whom all men of this generation may well call blessed. To his humanity and noble fervor for the promotion of peace myriads of human beings owe their lives to-day." This article was published, we

may remark, by the way, just as Alexander III. was dying. "For years," it goes on, "he has stood the champion of a cause little espoused by the masters of many legions at any time in the history of this world. But he could not if he would stay the gravitation of Russia towards India, the extension of his empire over the whole of Asia between Behring's Strait and the frontiers of China. 'The man who is frozen with cold will make his way to the fire if he can.' No czar has ever been able to stop that march. It is like that of 'the glacier, whose slow resistless mass moves onward day by day.' The rulers of India and the statesmen of England must make up their minds for that phenomenon as a permanent factor in the relations of the two empires, and they must be prepared for the consequences on the day when they send their last word to the czar of the moment, 'so far and no farther.' When will they send that ultimatum? Who will they be? What will be the Rubicon no Muscovite Cæsar is to cross or the mountain pass the Cossack must not enter? It is high time to cease complaining—nay, whining—about Russian aggression, and perfidy and intrigue. Let us leave that sort of wordy polemics to the men of words who write pamphlets, leading and other articles,—we had almost written dispatches,—and consider calmly and resolutely the course of action which those who have to protect the Indian empire for the Queen of England and her state against all-comers ought to pursue in the face of a civil war in Afghanistan on the death of the Ameer, and, over and beyond that, the position they should and must assume in case, as is probable if not inevitable, the Russian satraps in the old khanates pursue the policy of their predecessors and fly their eagles year after year over the territories of the so-called buffer states which lie between 'the man out in the cold' and the fire. The idea of a partition of Afghanistan between Russia and India is ingeniously Muscovite. But are we ready to go to war to prevent Russia 'accepting' a slice of Afghanistan if her present pensioner makes good his pretensions to the musnud of Cabul as a reward for her services? Are we ready to stand by some *protégé* of our own against the Russian favorite? Certainly there is a dilemma with formidable horns here. It would not be possible to remain neutral or indifferent should there be a civil war in Afghanistan on the death of Abdur Rahman. Russia may find it equally impossible to let events run their course on her side, and then at once we are presented with a condition full of doubt and danger. In fact, Afghanistan is to British India a country which we cannot neglect and which we cannot occupy, whilst we are bound at the same time to prevent any power making it its 'wash-pot,' *nec cum te nec sine te possum vivere.*"

The English *Navy Records Society* have published during the past year the "State Papers relating to the Defeat of the Spanish Armada,

Anno 1588," edited by Professor Laughton. The *Army and Navy Gazette* had a very interesting review of the two volumes, which is much too long to be quoted in full, but the following sentences may give the reader some ideas:

"The papers chosen represent the English view of the events of 1588, and Professor Laughton explains that his volumes and those of Captain Fernandez Duro are in a degree complementary to one another. Very cleverly does he dissect the popular conception of the Armada that has grown up,—namely, that it was a 'species of crusade instigated by the pope in order to bring heretical England once more within the fold of the true church.' To this he replies with evident truth that in reality no statement could be more inaccurate, and he proceeds to show very conclusively that two perfectly clear and wholly mundane causes—the commercial monopolies attempted to be established by Spain, and the countenance lent by Elizabeth to Philip's rebellious subjects in the Low Countries—led to the Spanish attack. That religious bitterness colored the struggle is true, a bitterness which had its origin in the wild stories circulated of the tortures suffered by Englishmen in the dungeons of the Inquisition. In relation to this Professor Laughton ingeniously suggests that some confusion of names may have arisen, since *inquisicion* means equally the Inquisition or a judicial inquiry; *inquisidor*, either an inquisitor or a magistrate or provost-marshal of the fleet. . . . This matter (the number of Englishmen living and carrying on a lucrative business in Spanish ports) deserves to be dwelt upon, because from the false conception of the real significance of the Spanish attack has arisen a belief that the fleet was ineffective, and that the Armada was scattered, not by naval operations, but by a heaven-sent storm. . . . On the authority of Captain Duro he tells us that the Spanish fleet which sailed from the Tagus numbered 130 ships (57,868 tons), with 2431 guns and 30,493 men; but whether more than 120 ships entered the channel is doubtful, of which about half would be victuallers and transports, so that it is questionable whether they had more than 10,000 or 12,000 fighting men. In the same way our 197 ships and 17,000 or 18,000 men must be reduced by more than one-half by reason of their non-combatant elements. The Spanish ships were well fitted for close fighting, but their high poops and forecastles placed them at a serious disadvantage when their enemies refused to close; and the weatherly qualities of our ships, their powerful armament, and the excellent gunnery of their men enabled us to win and hold our tactical advantage. There can be no doubt that in number and weight of guns we had an immense superiority, and we had the same superiority in the working of them. The Spaniards, in fact, despised the gun as an ignoble arm, a circumstance to be perhaps accounted for by the far greater proportion of soldiers to seamen in their ships than was to be found in the English fleet. The

want of ammunition on our side after the second day's fighting was, indeed, to be ascribed not so much to the queen's parsimony as to the rapidity with which the powder had been expended. As Professor Laughton well says, the off-fighting then practiced was an essentially new phase of naval war. Our armament placed this tactical advantage in our hands, and our seamen knew how to secure it."

Last autumn, while the issue between the Japanese and Chinese was still in some doubt, an "interview" was reported in the English service papers in which Admiral Sir George Willes, R.N.—a veteran of the Peiho and Taku affairs—said, *inter alia*, "Even if the Japanese got to Pekin, what could they do? The Chinese government would probably move off inland and refuse to treat; and if they take that line you can't do anything with them. My own opinion is that the European powers won't allow this war to go on much longer. The whole quarrel is absurd. Korea is absolutely worthless, and it is ridiculous that the trade of the world should be interrupted because the Japanese and Chinamen want to fight it out to the bitter end. A strong and powerful government in China is most important in the interests of England," etc.

The *naïveté* of the gallant admiral in this enunciation is charming, and he is only outspoken where the statesmen of his country wrap up the same ideas in a mass of phrases. For "the trade of the world" we should read "the trade of England," and there is the whole matter in a nutshell, from the English point of view.

The fact is that the bolstering up of the old condition of things in China by the English has been for the purpose of selling Indian opium and Manchester cottons, and anything which disturbs or breaks up this trade is intolerable and not to be borne. On this account it was that other great nations were appealed to to join in saving the Chinese from farther humiliation, and (in other words) to save the English commerce and established influence.

There was a time—and not so many years ago either—when England would never have appealed to other nations to form a convention on such a subject. She would just have "sailed in" and regulated matters with a high hand to suit her own interests. But times have changed, and there is Russia, with troops at hand, in eastern Siberia, and a fleet in Eastern waters; and there is France, with a military force in Cochin China, and a fleet in Eastern waters; and, more than that, there is Japan—but a few years since a negligible quantity in the eyes of Western nations—suddenly coming to the front, and announcing that, in the future, she is a very important power to be reckoned with in all matters in which the far East is concerned.

England cannot safely deplete her military force in India; and if

she did so for the sake of opposing Russia in China, the consequences to her Indian empire might be disastrous. Battle-ships are of no use in the Khyber Pass or in Sind.

The memoirs of Marshal McMahon will be extensively read, and here is an extract which the *Army and Navy Gazette* translates from a Continental paper, which shows that the book will not be confined to strategy and political affairs:

"A Clèves military periodical, *La Sabretache*, has just published extracts from the memoirs left by Marshal McMahon. These extracts relate to the Italian campaign of 1859, and especially to the battles of Magenta and Solferino. They are rather dry and technical, but give a tolerably accurate notion of the confusion of the actions and the happy-go-lucky way in which things are managed in the field. For instance, if it were not recorded by the gallant marshal himself, who would ever have supposed that he and his staff were within an ace of being made prisoners early in the day of Magenta? After describing some orders he had given, the marshal thus reports what took place: 'As I had no tidings as to the whereabouts of Espinasse, I started off with my escort in quest of him. Riding along the ground, where we could barely see a few yards in front of our horses, we were surprised to see a line of skirmishers deployed on our left. They were Austrian sharp-shooters. They mistook me for one of their generals, and presented arms to me. . The fact is, we had somehow got in between their line and their supports. We spurred on in hot haste, and did not give them time to find out their mistake.' He ultimately came up with Espinasse, who was shot through the head by a rifle bullet very soon after."

The author of "An Englishman in Paris," writing for the columns of the London *News*, says it is almost a misnomer to call the male members of the late Czar's immediate *entourage* his *collaborateurs;* and he illustrates his point in the following words: "M. de Giers, on the other hand, foresaw what would happen and what some people assert has happened,—an understanding with France; he was also reluctant to abandon the alliance with Germany, and when summoned to the emperor's presence frankly said so. He asked there and then to be relieved of his portfolio. 'You ask me to accept your resignation,' said Alexander, severely. 'You appear to forget that you are not in the service of a constitutional monarchy, under which *régime* ministers tender their resignations, but that you are under an autocracy, where the sovereign dismisses his ministers when he thinks it necessary. For the moment I fail to see that necessity, consequently I shall expect your reports upon the various questions within your domain. When

I think it necessary I will send you home.' M. de Giers endeavored in vain to enlist the sympathies of Admiral Shestakoff, a favorite of the Czar, but the old sea-dog declined to intercede. Since then M. de Giers has faithfully carried out his imperial master's views, but the visits to Varzin and Freidrichsruhe ceased. Was I far wrong in calling the so-called 'collaborateurs' of Alexander III. so many sublimated secretaries?"

If this story be true,—and there is no reason to doubt it, for it comes from an unusually well-informed source,—it gives an entirely different idea of the late emperor from that which has been entertained by the world at large.

Maclay's "History of the Navy" fails to notice the part taken by the navy in the Florida War. This service was not only onerous, but extremely dangerous to life from the nature of the climate, as well as the bullets of the Seminoles. Even these wily foes were not so persistent and omnipresent as the rattlesnakes and water-moccasins, the wild-cat and the alligator, and—worse a thousand-fold than all other pests—the mosquito. Truly, it was a weary war, in which, while the great burden fell upon the army, the "Mosquito fleet," officered and manned by the navy, bore a very useful part; quite as important, it seems to us, as some of the minor wars and expeditions, in describing which Mr. Maclay occupies some sixty pages of his second volume.

If we turn to Sprague's "Florida War" we will find recorded the names and rank of three officers and twenty-three petty officers and seamen of the navy, and of sixty-six non-commissioned officers and private marines, who died of disease or wounds in Florida.

The depot for what was denominated the Florida squadron, commanded by Lieutenant John T. McLaughlin, was at Indian Key, on the eastern coast, seventy-five miles south of Cape Florida, and seventy-five miles northeast from Key West. From June, 1838, to August, 1842, Lieutenant McLaughlin had under his command many officers whose names were afterwards well known in our service; such as John Rodgers and C. R. P. Rodgers, both of whom died rear-admirals, Edward T. Shubrick, Montgomery Hunt, William L. Herndon, William S. Drayton, James S. Biddle, and John B. Marchand, with Lieutenants Terrett and Sloan and six other officers of marines.

John B. Marchand died a commodore; Montgomery Hunt was lost in the "Albany," in the Caribbean Sea,—no trace of that vessel having ever been found; while William Lewis Herndon died in command of the "Central America," which foundered at sea, after conduct which will ever be a guide to chivalric deeds for the officers of the navy. He had, some years before his death, conducted a wonderful exploration of the head-waters of the Amazon, in connection with

Passed Midshipman Lardner Gibbon, who attained the rank of lieutenant, and resigned in 1857.

Of the officers of the navy named above as serving in the Florida War, but one survives,—James S. Biddle, who resigned from the service many years ago, and who is an honored citizen of his native Philadelphia.

To return to the Florida squadron. It consisted of the schooner "Wave" and sloop "Panther," and the revenue-cutters "Campbell" and "Otsego," from June, 1838, until November, 1839, and from that time until June, 1841, of the "Flirt," "Wave," and "Otsego," schooners, and barges "Mayo" and "Harney," with two companies of marines, in all five hundred and forty-one men. From June, 1841, to August, 1842, the vessels employed were the "Flirt," "Wave," "Otsego," "Madison," and "Van Buren," schooners, and the brig "Jefferson," with the barges "Mayo" and "Harney," and one hundred and thirty marines, making an aggregate force of six hundred and twenty-two men, of whom sixty-eight were officers. One hundred and forty canoes were employed by the squadron during its service. In addition to the garrison at Indian Key, the marines garrisioned Fort Dallas.

"This force, in the hands, as it was, of intelligent officers in the discharge of their duty, and guided by the experience and ability of the commander, added much to the efficiency of operations, and caused the Indians inhabiting that quarter to fear the *sailors' boats*, who were as skillful in navigating the Everglades as themselves."

Mr. Ropes's "Story of the Civil War" promises to be worthy of the historian of the Waterloo campaign. He says of General Buell, one of the least understood among the eminent generals of the war,—

"He was a thorough soldier; not even McClellan surpassed him in intimate knowledge of the various duties of officers and men, or in strength of conviction that prolonged and unremitting attention to their duties was the only means by which the volunteer regiments could ever acquire the solidity of an army. Buell was a strict—in fact, almost too strict—disciplinarian; but he was a great deal more than this: he sought to imbue his troops with the same principles of military duty which he held himself; his ideal of the soldier's character was of the highest, and the services which he rendered in this regard to the troops of his department—afterwards known to the world as the Army of the Cumberland—cannot be overestimated. Buell was also a very able man,—in military sagacity, in clear and unprejudiced vision, in decision of character, he had few equals among the generals on either side."

A reviewer in the *Literary Era*, who signs himself "J. H. C.," says,—

"In another place Mr. Ropes speaks of Buell as 'a far abler military man than McClellan.' It is one of the interesting questions of the Civil War why this fine soldier and able commander should not have exercised the influence upon events which his character and ability naturally suggest. He seems, unfortunately,—for his country as well as himself,—never to have commanded the full trust to which his merits entitled him. If instead of McClellan, Buell had been called to Washington, if instead of Halleck, Mr. Lincoln had chosen him for a military adviser, it is not a violent presumption that the history of events would now furnish much more satisfactory reading. It is, perhaps, an unprofitable speculation, but it is not improbable that had General Buell been given full opportunity the country might have been saved a great deal of humiliation and loss, and the war brought earlier to a close; but whether this would actually have been for the benefit of mankind is another question."

The reviewer goes on to say that Mr. Ropes's treatment of General McClellan's relations to the government and his military career—so far as the volume carries us—is dispassionate, just, and marked by keen insight and close reasoning. He does not hesitate to criticise Mr. Lincoln's course towards McClellan, and refers to Mr. Stanton in severe terms, and, perhaps, with somewhat scant justice. He gives General McClellan full credit for great talents as an organizer of troops, but does not rate him very highly as a planner of campaigns or as a commander in the field. The key to his failure Mr. Ropes finds in a curious and womanish development of his imagination to the detriment of his reasoning powers, which, however, doubtless added actual strength to the great personal attraction he possessed. The justness of this view is certainly strongly sustained by the curious revelations of "McClellan's Own Story," published postbumously some years since,—a work which has done more to damage this general's reputation than anything else that could have been printed.

E. SHIPPEN.

NAVAL AND MILITARY NOTES.

NOTES AND DATA ON NAVAL AND MILITARY MATÉRIEL AND ALLIED SUBJECTS.

It is the intention to collect and publish in this department of the "United Service" all information obtainable from current publications and other available sources concerning ships, guns, armor, explosives, small-arms, military and maritime affairs, and kindred subjects. As the data are derived largely from unofficial sources, strict accuracy cannot be expected; but all reports will be carefully examined and compared with others on the same subject, and it is hoped, by this means, to attain fairly correct results. Erratum notices will be published whenever errors are discovered in data previously given. As the development of the present plans for collecting information progresses, it is hoped to secure fuller and more authentic reports.

ABBREVIATIONS USED IN THE NOTES.

b.l. = *breech-loading guns of ordinary (not rapid-fire) type.*
cm. = *centimetre.*
f.a.m.l. = *fore and aft midship line.*
I.H.P. = *indicated horse-power.*
l.w.l. = *load water-line.*
m.g. = *machine gun.*
mm. = *millimetre.*
pr. = *pounder (as 6-pr.).*
r.c. = *revolving cannon.*
r.f. = *rapid-fire.*
r.f.g. = *rapid-fire gun.*

GUNPOWDER AND EXPLOSIVES.

EXPLOSION AT WALTHAM ABBEY.—A very serious explosion took place at the government explosives factory, Waltham Abbey, England, on May 7, 1894. Four men were killed and over 20 wounded,—nearly all the latter very slightly, chiefly by broken glass. The first part of the explosion took place in the nitro-glycerin washing-room, where two men were washing nitro-glycerin to cleanse it of the free acid. Immediately afterwards a second explosion took place in a house near by used for the storage of finished nitro-glycerin. The cordite works, of which these houses formed a part, will be closed for a considerable time, and several hundred men will be thrown out of employment.

LEONARD SMOKELESS POWDER: COMPOSITION.—According to the English patent No. 20,066, October 24, 1893, Mr. M. E. Leonard's powder consists of nitro-glycerin, gun-cotton, lycopodium, and a neutralizer of free acid, such as urea or dinitro-benzol. The most satisfactory proportions for the United States Army .30 calibre rifle are found to be:

Nitro-glycerin . . .	150	parts by weight.
Gun-cotton	50	" "
Lycopodium . . .	10	" "
Urea crystals . . .	4	" "

For great guns, where a further deterring and moisture-proof effect is desired, 7 parts by weight of cotton-seed oil are added to the above-named ingredients.—C. E. MUNROE in *Naval Institute.*

EXPLOSIVE FORCE OF CERTAIN EXPLOSIVES.—According to experiments conducted by the Board of Ordnance and Fortification, the explosives tested take rank in the following order as regards explosive force:

Perunite B	17.57
" C	15.61
" D	13.66
Explosive gelatin	10.00
Rackarock	9.36
Emmensite	5.49
Gun-cotton	3.16
United States rifle powder	1.72

This refers to blasting effect chiefly. Americanite is reported unfit for use in shells and, together with rackarock, to be unsafe under some other conditions. It was demonstrated that wet gun-cotton and emmensite can be safely used as charges for 12-inch mortar shells. This latter is not a very startling discovery. What we want now is an investigator who will supply a safe and efficient fuse for high-explosive shell.

RATES OF COMBUSTION OF EXPLOSIVES.—According to Monsieur P. Vieille, the speed of combustion of certain explosives is as follows:

Nature of Explosive.	Densities attained.	Combustion Speed per Second.
A. *Black or Brown Powders.*		
Mining powder	Superior to 1.900	5.09
Brown " (French)		4.45
" " (German R.W.P.)		5.70
Black " (French $\frac{4}{4}$)		8.50
Common French sporting powder		9.48
Fine " " "		13.74
B. *Colloidal Powders.*		
Pure cotton powder (German)	Bordering upon 1.600	5.89
Cordite (English)		20.49
B. N. powder (French)		7.58
Ballistites (Nobel's)		20 to 40
C. *Various Explosives.*		
Nitromannite	1.765	23.3
Diphenylene hexanitrate	1.620	6.19
Picric acid	1.708	5.32

The above represents the mean speeds of combustion at pressures between 100 and 2500 kilogrammes per square centimetre. All the powders, except the colloidal, were first pulverized and sifted through silk gauze; they were then compressed into grains of known dimensions under known pressures, so as to insure their combustion by parallel surfaces.—From *Arms and Explosives.*

CORDITE: CONTRACTS FOR.—The British government has invited proposals for the manufacture of cordite by private firms. The explosion at the cordite factory, Waltham Abbey, briefly described above, has hastened the arrangements.

PROJECTILES.

CARPENTER ARMOR-PIERCING PROJECTILE: TEST.—A 13-inch Carpenter armor-piercing projectile was tested at Indian Head, May 8, 1894. The plate was of nickel-steel, curved, 12 inches thick. The striking velocity was 1375 f. s. The projectile perforated the plate and backing, and on recovery was found to be uncracked and not set-up at all.

WHEELER–STERLING ARMOR-PIERCING PROJECTILES: TEST.—Two Sterling armor-piercing projectiles were tested at Indian Head, May 5, 1894. One was of 12-inch, the other of 13-inch calibre. The plate was curved, of nickel-steel, 12 inches thick. The velocities of both projectiles were 1500 f. s. The 12-inch was the first fired. It struck at an angle of 3° or 4° with the normal, perforated plate and backing and 12 feet of sand. It was recovered entire and uncracked. The 13-inch shell struck normally 36 inches from the other, perforated plate, backing, and butt, and ranged 350 feet beyond. Like the 12-inch, it was entire and uncracked.

ARMOR.

18-INCH HARVEY NICKEL-STEEL PLATE: TEST.—An 18-inch nickel-steel Harveyed plate was tested at Indian Head, May 18, 1894. A 12-inch Carpenter a. p. projectile, fired with a charge of 269 pounds of prismatic powder, struck the plate near its centre with a velocity of 1465 f. s. The projectile rebounded, very slightly injured. The plate was perforated and cracked from top to bottom, also from point of impact to left edge. A second shot, using 419 pounds of powder and a velocity of 1926 f.s., fired at the large piece of the plate to the right of the vertical crack, split the plate widely across and penetrated 8 inches into the backing. The piece of plate struck was shattered. Another plate will be tested. The lot of 20 plates, of which the above was one, weighs 613 tons. The failure of a second plate will cause the lot to be rejected. It was thought by some that the Harveyizing process is apt to weaken the resisting powers of thick plates; but the test of the 17-inch plate, given below, shows that this is not always so, at least; and, with a little more experience, uniform results of equal excellence are hoped for.

6-INCH NICKEL-STEEL HARVEY PLATE: TEST.—"A report was received at the Navy Department, May 14, which is highly creditable to the Carnegie Company, and which shows that if there is any truth at all in the charges of fraud made against this firm, they are grossly exaggerated. The report is made by Lieutenant Mason, in charge of the Indian Head Proving Grounds, and gives the results of the recent test of a Carnegie plate which had been rejected by the government inspector on account of surface cracks and other defects. The plate tested was manufactured for the barbettes of the battle-ship *Massachusetts*. It is a 6-inch Harveyized curved plate, 21 feet 8 inches long by 5 feet 8½ inches wide. It is officially known as plate A-883, and is one of those which some of the informers allege to be defective. It had five vertical cracks on the surface from eighteen to twenty-four inches long. The plate was erected, being supported at each end by heavy timbers and bolts. Three shots were fired from a 40-calibre 6-inch gun with the following results, according to Lieutenant Mason's official report:

"'Shot No. 1, fired with a velocity of 1800 f. s. and a striking energy of 2248 ft. tons, line of fire being normal at impact, striking about fifteen inches from the most serious crack, penetrated about three and one-half inches. The shell broke, the ogive welding into the plate, the remainder of the shell scattering into fragments. The effect on the cracks was to open them out a little and deepen them a very little to the softer metal of the plate, but did not lengthen any of them. No new cracks were developed. On being struck, the plate sprung like a bow, but came back in place again. The second shot struck twenty-six inches to the right of impact No. 1, and six inches from the end of two cracks and midway between them. The result was about the same as from the first shot. The third shot was fired with a velocity of 2000 feet, with a striking energy of 2700 ft. tons. It struck the plate at an angle of 12 degrees with the normal and about twenty-two inches from the second impact. The penetration was about four inches. The shell smashed on the plate in the same manner as the two previous shots. It caused no change in the cracks.

"The report concludes as follows: 'The hard metal of the surface of the plate showed a very fine grain, having a clear ring when struck, resembling very much tool-steel, and also that of some of the points of armor-piercing projectiles. The original cracks were not appreciably lengthened by any of the impacts, but seemed to open out a little bit and deepen somewhat. The opening out and deepening of these original cracks were very slight indeed, hardly appreciable, and the opening out may have been simply that the scale jarred away from the edges of the cracks.'"—*Army and Navy Journal.*

17-INCH HARVEY NICKEL-STEEL PLATE: TEST.—A successful test of a 17-inch Harvey nickel-steel plate took place at Indian Head, June 12, 1894. The plate was a curved one of a group of thirteen, each measuring 12 feet in

height, 8 feet 3 inches in breadth, and 17 inches in thickness, and together forming the forward barbette (a huge cylinder in shape) of the *Massachusetts*, which is 32 feet in internal diameter and 12 feet high.

The plate was stood on its side and secured with 24 3.2-inch (diameter) bolts to a 36-inch oak backing. The gun used was the service 12-inch B.L.R.; distance of target from muzzle, 100 yards; fire normal to plate at impact; projectile, Carpenter armor-piercing, brought to exact weight of 850 pounds with sand.

First shot: impact 61 inches from left and 38 inches from bottom edge; charge of powder 253 pounds; volocity at impact 1410 f. s. The shell smashed upon the plate, its point probably penetrating 9 or 10 inches, but welding fast, while the base and remainder of the body, in many fragments, much twisted and distorted, rebounded from the plate. An annular crater 19 inches in outside diameter and 3 inches deep surrounded the embedded head of the shot, "where the fragments of the body had indented the face." There were no cracks, no starting of bolts, no movement of the structure.

Second shot: impact 41 inches from right edge, 38 inches from top, and 40 inches from that of Shot No. 1; charge, 396 pounds; velocity 1858 f. s.; projectile, Carpenter armor-piercing, etc., same as before. Shell smashed upon the plate as in the first shot, the crater formed being twenty inches in diameter and four inches deep. The penetration was two or three inches deeper. A single through-crack, the section of which showed a particularly fine and flawless grain, ran to the right edge of the plate. A single armor-bolt immediately in rear of the point of impact was driven back slightly, but in no other respect was the target or structure changed or disturbed.

It is interesting to compare the above results with those obtained with a plate of the same thickness tried about a year ago. The latter was of the same size and thickness, and differed only in not being Harveyed. A 12-inch armor-piercing projectile struck it with a velocity of 1858 f. s. It pierced the plate, 36 inches of oak backing, several feet of supporting structure, a mound of earth, "and went viciously humming down the river with enough energy left to perforate a whole navy of cruisers."

WAR-SHIPS AND TORPEDO-BOATS.

Great Britain.

"HUSSAR": LAUNCH.—The torpedo-gunboat *Hussar*, 1070 tons, was launched at Devonport on July 3, 1894. She is the last of her class to take the water.

"HASTY": LAUNCH, DIMENSIONS.—The torpedo-boat destroyer *Hasty* was launched at Yarrow's Yard, Poplar, June 16, 1894. Her dimensions are: Length, 190 feet; beam, 19 feet, draft, 5 feet 3 inches; displacement, 220 (?) tons (probably nearer 250 tons). The required contract speed is 27 knots, and the anticipated I.H.P. of the engines is about 4000, which will probably give a speed of about 28 knots.

"CHARYBDIS": STEAM TRIALS.—The protected cruiser *Charybdis*, 4360 tons, completed her steam trials in July, 1894. The results of the natural-draft trial were: Steam at boilers, 141.7 pounds; air-pressure, 0.57 inch; vacuum, 27.2 inches; revolutions, 127.7; I.H.P., 7109; speed by patent log, 19.3 knots. The mean draft on trial was 19 feet, which is the designed load draft. The I.H.P. developed on the forced-draft trial was 9136 and the speed by patent log 20.5 knots. The *Charybdis* was built at Sheerness Dock-Yard and engined by the Earle Ship-building Company.

"FLORA": STEAM TRIAL.—The protected cruiser *Flora*, 4360 tons, a sister ship to the *Charybdis*, developed on her natural-draft trial a speed of 19.2 knots with 7187 I.H.P. The *Flora* was built at Pembroke Dock-Yard and engined by the Naval Construction and Armaments Company. She was launched November 21, 1893.

"DRYAD": STEAM TRIALS.—The *Dryad* had her first trials in April, 1894.

The results of the 8-hour natural-draft trial, on April 13, were: Steam-pressure in boilers, 134.6 pounds; vacuum, 26.3 inches; revolutions, 213.8; I.H.P., 2696; air-pressure in fire-rooms, 0.96 inch; speed not reported. The results of the 3-hour forced-draft trial, on April 26, were: Steam-pressure in boilers, 149 pounds; vacuum, 27.4 inches; revolutions, 242; I.H.P., 3709; air-pressure in fire-rooms, 2 28 inches; speed by patent log, 18.5 knots. The *Dryad* had additional trials in June. On June 13 the mean results over the measured mile, at moderate power, were: Air-pressure 0.67 inch; I.H.P., 2621; speed, 16.85 knots. The vessel was drawing 8 feet 9 inches forward and 8 feet 11 inches aft. The mean load draft is 9 feet. After the trial was concluded the boilers were found to be strained and leaky, but the machinery was accepted.

"HAZARD": STEAM TRIALS.—The trials of the *Hazard* took place in March and April, 1894. The 8-hour natural-draft trial, on March 30, gave: Steam-pressure in boilers, 137 pounds; air-pressure in fire-rooms, 0.82 inch; vacuum, 24.8 inches; revolutions, 228.4; I.H.P., 2604; speed by log, 17.1 knots. The 3-hour forced-draft trial results were: Steam-pressure in boilers, 142 pounds; air-pressure, 2 19 inches; I.H.P., 3714; speed by log, 19 knots. The boilers were found to be very much strained and leaky, but after another natural-draft trial they were accepted, together with the engines and other propelling machinery.

"HALCYON": STEAM TRIALS.—The results of the *Halcyon's* natural-draft trial were: Air-pressure, 1.04 inches; I.H.P., 2590; speed by log, 17.2 knots. On her first forced-draft-trial the main bearing bolts of the starboard engine gave way and the trial was stopped. The accident required some days to repair. After the completion of the repairs, a second and successful trial was held with the following results: Steam-pressure, 147 pounds; air-pressure, 2 inches; vacuum 24.8 inches; revolutions, 247.7; I.H.P., 3546; speed by patent log, 17.7 knots.

"DARING": STEAM TRIALS.—The first trials of the torpedo-boat destroyer *Daring* took place on June 23, 1894. Before going on the measured mile it was found that 91 revolutions gave 7.86 knots; 175 revolutions, 14.2 knots; 238 revolutions, 18.3 knots; and 322 revolutions, 23.4 knots. Three runs over the measured mile (no perceptible tide) gave:

	Steam.	I.H.P.	Revs.	Speed.
First run	200	. .	382.9	28.214
Second run	200	. .	385.7	28.571
Third run	215	4842	395.1	29.268
Averages	205	. .	387.9	28.684

The official trials took place in July. Six runs were made over the measured mile, giving a mean of 28.232 knots. The maximum I.H.P. reached was 4735, but the average was considerably less. The draft on trial was 5 feet 7.5 inches forward, and 6 feet 11.25 inches aft. The corresponding displacement is about 240 tons.

"FERRET": STEAM TRIALS.—The official trial of the torpedo-boat destroyer *Ferret* took place on July 10, 1894. Six runs were made over the measured mile. The mean results were: Steam-pressure, 172.2 pounds; vacuum, 24.85 inches; revolutions, 363; I.H.P., 4507; speed, 27.612 knots. A 3-hour sea-trial took place the same day, with the following results: Steam-pressure, 169 pounds; vacuum, 24.75 inches; revolutions, 360.07; I.H.P., 4490.5; speed by log, 27.51 knots.

"LYNX": SPEED ON TRIAL.—No definite report of the trial of the *Lynx* have been received. It is said that she made 26.5 knots with about 4000 I.H.P.

TORPEDO-BOATS "91" AND "97": TRIALS, DESCRIPTIONS.—The trials of *No. 91* gave: Mean of 6 runs over the

measured mile, 23.71 knots; mean of two consecutive runs, 24.72 knots; 8-hour free-route trial gave (by patent log) 23.74 knots; the maximum I.H.P. developed during the trials was 2639. The dimensions of *Nos. 91* and *29* are: Length, 142 feet 6 inches; beam, 15 feet 6 inches; draft (maximum), 7 feet 6 inches. Together with *No. 93*, they were built by Thorneycroft at Chiswick. *Nos. 91* and *92* are single-screw boats, and the engines are duplicates of one set of the *Daring's*. Two boilers of the type of those in the *Speedy* are fitted; they are water-tubulous and, of course, of the Thorneycroft type. The load displacement is 129 tons. The armament consists of three 3-pounder R.F.G. and three 18-inch torpedo-tubes. The coal capacity is about 30 tons, and the complement of officers and men is 21.

In the trial of *No. 97* the mean results of six runs over the measured mile were: Steam-pressure, 171 pounds; vacuum, 24.8 inches; revolutions, 361.1; I.H.P., 1675; speed, 23.71 knots. *No. 97* was built by Laird, and is of the same dimensions as *Nos. 91*, *92*, and *93*, and carries the same armament. It is a single-screw boat.

"Royal Sovereign" Class: Bilge Keels Fitted; Effect of Bilge Keels.—All of the *Royal Sovereign* class have now been fitted with bilge keels. The *Repulse* was the first to have them. A short time afterwards she was cruising in company with three of her sister ships, the *Royal Sovereign*, the *Empress of India*, and the *Resolution*, to none of which bilge keels had yet been fitted. While at anchor in Lough Swilly, "a slight beam swell caused the *Royal Sovereign* and her two sisters to roll from 5 to 8 degrees, while the *Repulse* did not get beyond 1 degree" (rather a strong statement, but it is copied verbatim). On leaving the Hebrides the ships were exposed to a moderate beam swell from the Atlantic. The *Resolution's* heaviest roll for the night was 24 degrees, that of the *Empress of India*, 28 degrees, while the *Royal Sovereign* reached 33 degrees and had to haul out of line and secure her boats, after taking a quantity of water down her main hatchway. During this time the greatest roll of the *Repulse* was only 11 degrees, and she was as quiet and comfortable as the others were uneasy and uncomfortable. In consequence of the improvement effected in the *Repulse* all the vessels of the class were ordered to be fitted with bilge keels without delay.

France.

Building Programme, 1895.—The construction of sixteen ships, all except one of large dimensions, will be actively prosecuted during 1895,—viz., the battle-ships *Charles Martel*, *Carnot*, *Masséna*, *Bouvet*, *Charlemagne*, and *Saint Louis*; first-class cruisers *D'Entrecasteaux* and *Pothuau*; second-class cruisers *Du Chayla*, *D'Assas*, *Cassard*, *Pascal*, and *Catinat*; third-class cruisers *Lavoisier* and *Galilée*; and a sea-going torpedo-boat, named the *Mangin*, after the unfortunate engineer who lost his life in the accident on board the *Sarasin*, in January, 1894.

The only vessels to be laid down, so far as decided upon, are: one battle-ship, referred to as A 7; the first-class cruiser *Jeanne D'Arc*, which was to have been taken in hand more than a year ago; a second-class cruiser, E 4; a first-class station dispatch-vessel, S 2; the sea-going torpedo-boat *Ténare*, and the first-class boats P 20 and P 21. All of them except the battle-ship appeared in the estimates for 1894. The construction of the battle-ship *Henri IV.*, together with that of 3 second-class cruisers, 1 second-class dispatch-vessel, 1 sea-going torpedo-boat, 3 first-class torpedo-boats, and 4 second-class boats, 6 boats for transports, and 2 launches,—all of which were to have been built by contract and laid down during 1893 and 1894,—has been postponed indefinitely. Some of these vessels will probably never be built.

"Carnot": Launch, Description.—The first-class battle-ship *Carnot* was launched at Mourillon Arsenal, Toulon, July 12, 1894. She was laid down in 1891 as the *Lazare Carnot*, but since the assassination of the late president it has been decided to call her the "Carnot," in remembrance of him as well as of the "organizer of victory."

The dimensions are: Length, 380 feet 7 inches; beam, 70 feet 6 inches; draft aft, 27 feet 3 inches; displacement, 11,988 (metric) tons. All of the general arrangements of the *Carnot* are practically identical with those of the *Charles Martel*. The hull is of steel, unsheathed. The protection to the water-line consists of a complete armor belt 17.7 inches thick at the water-line amidships tapering to 9.8 inches at the lower edge. The thickness at the water-line is reduced forward and aft to 13.8 and 12.2 inches respectively. Above the thick belt is another thinner one called the coffer-dam belt. It is four feet deep and 3.94 inches thick. The armor deck, which is at the top of the lower belt, is 2.75 inches thick.

The bow of the ship is high and the stem is nearly straight. Two military masts are fitted, each carrying three tops; and there are two smoke-pipes.

The battery is as follows: Two 30-cm. (11.8-inch) B.L.; two 27-cm. (10.6-inch) B.L.; eight 138-mm. (5.5-inch) R.F.G.; four 65-mm. (9-pounder) R.F.G.; eight 47-mm. (3-pounder) R.F.G.; ten 37-mm. revolving cannon (two in the upper tops). The 30-cm. guns are mounted in closed turrets, one forward, one aft, on the midship line. The axis of the forward gun is about 26 feet and that of the after one about 19 feet above the water-line when the vessel is at her designed load draft. The 27-cm. guns are mounted in closed turrets, one on each side amidships. The height of these guns is about the same as that of the after 30-cm. piece. The thickness of all these turrets is 14.56 inches. The 138-mm. guns are mounted singly in eight small turrets, of which two are on a line between each 30-cm. and 27-cm. turret, so that four 138-mm. guns may be fired ahead, astern, or on either beam. The thickness of these small turrets is 3.94 inches. All the guns of the battery are of great length, 800 metres (2625 feet) being the designed muzzle velocity.

The engines are twin-screw, inverted, vertical, triple-expansion, designed to develop 12,500 I.H.P. with forced draft and 9000 with natural draft, which powers are expected to give speeds of 19 and 17 knots respectively. The boilers are 24 in number, Lagrafel and D'Allest water-tubulous.

"CASSINI": LAUNCH, DESCRIPTION.—The torpedo-gunboat *Cassini* was launched at the Graville Yard, near Havre, June 5, 1894. The hull is of steel and of the following dimensions: Length, 262 feet 5 inches; beam, 27 feet 4 inches; depth, 17 feet 5 inches; draft, aft, 11 feet 5 inches; displacement, 943 (metric) tons. A light protective deck, 0.6 inch thick, is fitted, and the hull is reinforced by hard steel plates abreast the engines and boilers. The engines are twin-screw, triple expansion, designed to develop 5000 I.H.P. and give a speed of 21.5 knots. There are 8 D'Allest water-tubulous boilers arranged in four groups. The coal-supply is 117 tons. The battery consists wholly of rapid-fire guns, one of 10 cm. (3.9-inch), three of 65 mm. (2.56-inch), five 3-pounders, and four 1-pounders. Three torpedo-tubes are fitted. The complement is 126 officers and men.

"LATOUCHE-TRÉVILLE": TRIAL SPEED, DESCRIPTION.—This vessel developed a speed of 18 knots on her recent trials. This is not regarded as very satisfactory, as the designed speed was 19 knots.

The *Latouche-Tréville* is one of four sister ships, the others being the *Charner*, *Chanzy*, and *Bruix*. The dimensions are as follows: Length between perpendiculars, 347 feet 9 inches; beam, 45 feet 11 inches; depth, 27 feet 2 inches; mean draft, 19 feet 2 inches; displacement at this immersion, 4745 (metric) tons. The designed I.H.P. of the engines was 8300, which was expected to give a speed of 19 knots. The hull is of steel, unsheathed. The protection consists of a broad belt of armor, 3.62 inches thick, extending completely around the ship and covering the broadside well above water; a curved steel protective deck, 1.97 inches thick on the slopes and 1.57 inches on the flat; and lastly a cellulose coffer-dam belt rising 1.2 metres (3 feet 11 inches) above the water-line. A shelter, or splinter deck, is fitted above the machinery space below the protective deck. The battery consists of

two 19-cm. (7.48-inch B.L. guns mounted in turrets on the fore- and aft-midship line, one forward, one aft; six 14-cm. (5.5-inch) R.F.G. in turrets supported by sponsons, three each side; six 37-mm. revolving cannon (1-pounder R.F.G. may be substituted); and five torpedo-tubes are fitted, two forward, one on each beam, and one in the stern. The armor of the turrets of the 19-cm. and 14-cm. guns is 92 mm. (3.62 inches) thick. Two military masts are fitted, each carrying three tops.

"COETLOGON": FURTHER TRIALS, ACCEPTANCE.—Upon further trials this vessel, on June 4, 1894, developed a speed of 20.6 knots without accident or the development of defects, and, as this speed exceeded the contract requirements, she was accepted.

"DAUPHIN": DESCRIPTION, TRIAL SPEED.—The sea-going torpedo-boat *Dauphin* was built at the yard of the Forges et Chantiers de la Mediterranée, Havre, where she was launched March 23, 1894. The dimensions are: Length, 141 feet; beam, 16 feet 4 inches; draft, 9 feet 3 inches; displacement, 117 tons. The engines are twin-screw, triple-expansion, of 1500 I.H.P., intended to give a speed of 23.5 knots. The armament consists of two 3-pounder R.F.G. The *Dauphin* completed her steam trials in June, 1894, and has been accepted. The reports concerning the speed developed are conflicting, some giving 23.224 and the others 24.5 knots. The former is believed to be correct.

"ARGONAUTE": TRIAL SPEED.—On her recent steam trials the *Argonaute* developed a speed of 25.1 knots. The *Argonaute* is in all principal dimensions and characteristics a sister boat to the *Dauphin*. The boilers are Du Teneple water-tubulous. She was built at St. Denis.

"TOURMENTE": TRIAL SPEED.—Like the *Argonaute*, the *Tourmente* was built at St. Denis, and is in all respects a sister boat to both the *Dauphin* and *Argonaute*. The speed developed on trial was 24.6 knots.

"TOURVILLE": TRIAL.—The old cruiser *Tourville*, which has recently been thoroughly overhauled and refitted, has had her steam trials. A speed of 15 knots was reached.

"JEMMAPES": REPAIRS.—The repairs to the armored coast-defense ship *Jemmapes* are finished. The forward part of the vessel has been considerably strengthened, as it was found to be too weak to stand the shock of firing her heavy guns.

Russia.

BUILDING PROGRAMME, 1895.—While the full building programme for 1895 has not yet been made public, there are various rumors as to its probable character. It is stated that three new armor-clads will be built for the Black Sea fleet, but this is too indefinite to be worth much consideration. It is known beyond reasonable doubt that the following will be taken in hand, and possibly laid down before January 1, 1895: the battle-ship *Rostislav*, of the *Sissoi Veliki* type, for the Black Sea fleet; the coast-defense armor-clad *Grand Admiral Apraxine*, of the *Uschakoff* type, for the Baltic; an armored cruiser of 11,000 tons, also for the Baltic fleet; a torpedo gunboat of 500 tons; 28 first-class torpedo-boats, length, 138 feet, speed, 25.5 knots; several smaller torpedo-boats, length, 128 feet, speed, 22.5 knots. The vessels proposed or recently laid down are therefore as follows:

Name.	Type.	Where building.
Russia	Armored cruiser, Rurik type	Baltic Works, St. Petersburg.
Unnamed	" " " "	New Admiralty Works, St. Petersburg.
"	Battle-ship, Sissoi Veliki type	New Admiralty Works, St. Petersburg.
Rostislav	" " " "	Nicolaieff.
Three Hierarchs	" " " "	"
Paris	" Tri Sviatitelia "	"
Grand Admiral Apraxine	Coast-defense ship, Uschakoff type	Baltic Works, St. Petersburg.
Standard	Imperial yacht, 5557 tons, 23 knots, 15,000 I.H.P., ordered a year ago, construction well advanced.	Copenhagen.

Name.	Type.	Where building.
Unnamed " "	Torpedo gunboats, Pocadnik type, enlarged.	.
Torpedo-boats	138 feet length, 25.5 knots speed. 128 " " 22.5 " "	. To be built by contract.
Torpedo-boat destroyer	Ordered from Yarrow, speed, 29 knots.	. Yarrow, Poplar, England.

TORPEDO-BOAT DESTROYER ORDERED.—During the spring of 1894 the Russian Admiralty ordered from Yarrow, of Poplar, England, a torpedo-boat destroyer of 180 feet length, to have a guaranteed speed of 29 knots, to be maintained during a 3-hour run, the boat carrying a load of 30 tons.

"SISSOI VELIKI": LAUNCH, DESCRIPTION.—This powerful second-class battle-ship was launched from the New Admiralty Yard, St. Petersburg, on June 1, 1894. The hull is of steel, unsheathed, and of the following dimensions: Length, 344 feet 6 inches; beam, 68 feet 10 inches; displacement, 8880 tons. The usual double-bottom is fitted, and there are numerous water-tight bulkheads. There is one military mast which carries two tops; also a signal mast aft. The vessel is electrically lighted, and considerable use is made of electricity for working auxiliary machinery. The protection to the hull consists of a complete armor belt at the water-line; it is 15.7 inches thick for about four-fifths of the length, and 11.8 inches for the remainder. This belt is covered by an armor deck 2.95 inches thick. Above the thick belt is another one 5 inches thick, also surrounding the ship. Above this still is a casemate of the same thickness, containing the 6-inch guns. The battery consists of four 12-inch guns, mounted in pairs in barbettes forward and aft on the midship line, and having arcs of fire of about 270 degrees; six 6-inch R.F.G. in the central battery or casemate, with arcs of fire of about 100 degrees; eight 3-pounder R.F.G. on the deck over the casemate, and three more in the tops; and several smaller R.F.G. and machine-guns variously disposed. Six torpedo-tubes are fitted, one forward, one aft, two each side. The engines are twin-screw, triple-expansion, of about 8500 I.H.P., designed to give a speed of 16 knots. There are sixteen boilers, arranged in four water-tight compartments, and connecting to two smoke-pipes. The coal-supply is about 800 tons, designed to give a radius of action of about 2000 miles at 10 knots speed, which it most certainly will.

Italy.

"SARDEGNA": TRIAL.—This battle-ship recently completed her trials in the Gulf of Genoa, making 17.6 knots on 85 revolutions, and 13,000 I.H.P. with natural draft, and nearly 19 knots for upward of five hours with forced draft, the engines making from 90 to 95 revolutions. For three hours the speed was 19.8 knots. She was subsequently tried at reduced power, burning both coal and petroleum refuse in her furnaces, as is now frequently done in ships of the Italian navy, the result being satisfactory, and the conclusion reached that, when firing in this manner, about double the quantity of steam can be got from the boiler than can be by burning coal alone with natural draft.—*Journal of the American Society of Naval Engineers.* The *Sardegna* is a sister ship to the *Umberto I.*, already described in these NOTES.

"LOMBARDIA," "LIGURIA," "ETRURIA," "UMBRIA": TRIAL SPEEDS.—The *Rivista Marittima* gives the speeds realized on trial by the above-named cruisers as follows: *Lombardia*, natural draft, 15.1 knots; forced draft, 17 knots. *Liguria*, natural draft, 17 knots; forced draft, 19.5 knots. *Etruria*, natural draft, 17.8 knots; forced draft, 19.8 knots. *Umbria*, natural draft, 17.5 knots; forced draft, 18.8 knots. The above speeds are inconsistent with each other and with the reported horse-powers developed. But they seem to be official. Probably the conditions of the trials and the methods of determining the speeds, if known, would explain the apparent discrepancies.

Japan.

NEW BATTLE-SHIPS ORDERED, "FUJIYAMA" AND SISTER SHIP: DESCRIPTION.—The *Fujiyama* will be built by the Thames Iron-Works and Shipbuilding Company and the other by Armstrong & Company at Elswick. The dimensions are: Length between perpendiculars, 370 feet; beam, 73 feet; draft, 26 feet 6 inches; displacement, 12,250 tons. The coal-supply at load draft is 700 tons, total capacity, 1100 tons. The armor belt is 226 feet long, 18 inches thick abreast engines, and 16 inches at the ends. The barbette armor is 14 inches thick. The battery consists of four 12-inch guns mounted in pairs in barbettes forward and aft; ten 6-inch rapid-fire guns in casemate; fourteen 3-pounder R.F.G.; ten 2.5-pounder R.F.G.; and six torpedo-tubes are fitted. The protective deck is 2.5 inches thick. The stem is ram-shaped. There are two military masts with double tops, and fitted with derricks for handling the boats, thirteen of which are carried, including two vedette boats. The ships will be lighted throughout by electricity, and each will have five search-lights. The engines are twin-screw, triple-expansion; those for the *Fujiyama* are building by Humphreys, Tennant & Co., of Deptford, the boilers being of the usual cylindrical type with tube ends protected by this firm's patent ferrules. The contract speed is 18 knots.

Chile.

"BLANCO ENCALADA": TRIAL, DESCRIPTION.—This high-speed protected cruiser was built at Elswick, where she was launched September 9, 1893. The hull is of steel, sheathed with wood and coppered. The dimensions are: Length, 370 feet; beam, 46 feet 6 inches; mean draught, 18 feet 6 inches; displacement at this immersion, 4500 tons. The protective deck extends from stem to stern, and is 4 inches thick on the slopes amidships over boilers and engines, 3 inches on the slopes forward and abaft, and 1.75 inches on the flat. There are two smoke-pipes and two military masts, each carrying two tops, one close below the other. The conning-tower is 6 inches thick.

The engines, which were built by Humphreys, Tennant & Co., consist of two sets of 4-cylinder, triple-expansion engines driving twin-screws. The coal capacity is 900 tons.

The battery consists of two 8-inch B.L.R. (with rapid-working breech action); ten 40-calibre, 6-inch R.F.G.; twelve 3-pounder R.F.G.; ten 1-pounder R.F.G.; and two Gatlings. Five torpedo-tubes are fitted, one fixed tube forward and two training tubes on each broadside. One 8-inch gun is mounted on the centre line forward of the superstructure and one abaft it. One 6-inch is placed in each corner of the superstructure; the forward pair are thus able to fire directly ahead and the after pair directly astern. The remaining six 6-inch are in broadside in the superstructure (not in sponsons), and have a train of about 50 degrees forward and abaft the beam. Four 1-pounders are mounted in the lower tops. Eight 3-pounders are in broadside, one between each pair of 6-inch guns; four are mounted on the upper deck forward and abaft the superstructure.

On the gunnery trials four rounds were fired from one of the 8-inch guns in 62 seconds. The designed muzzle velocity of these pieces is 2200 f. s. with a 210-pound projectile (a very light one for an 8-inch gun, probably adopted to a better showing for the muzzle velocity and speed of loading). The designed muzzle velocity of the 6-inch guns is 2500 f. s. with a projectile of 100 pounds weight.

The speed trials began on May 23, 1894. The mean results with forced draft over the measured mile were 22.78 knots speed and about 14,500 I.H.P. The natural-draft trials lasted 12 hours. During this time six runs were made over the measured mile, giving an average of 21.6 knots speed with about 11,000 I.H.P. The accounts of the trial give no definite assurance that this was maintained during the whole 12 hours, nor that it was made without "assisted" draft. The diameter of the turning circle was found to be 405 yards, and the time to complete the circle 3 minutes 47 seconds.

United States.

"MINNEAPOLIS": TRIAL.—The following account of the trial of the *Minneapolis* is derived from the *Journal of the American Society of Naval Engineers*. The trial took place over the measured deep-water course between Cape Ann, Massachusetts, and Cape Porpoise, Maine. It is 43.968 knots in length and is marked by buoys, while vessels were stationed along it at intervals for the purpose of making tidal observations. The actual time on the course (1 run each way) was 3 hours, 49 minutes, 2.3 seconds, giving a mean speed, corrected for tide, of 23.073 knots. The least depth of water on the course is 19 fathoms.

The excellent performance of the *Minneapolis* shows that she is beyond question the fastest cruiser afloat, and it is the more remarkable from the fact that the trial was commenced 16 minutes before the time agreed upon, before steam had been raised to the full pressure, and from the fact that the air-pressure used was only 1 inch of water.

The *Minneapolis* is of the same dimensions as the *Columbia*, and differs from her in outward appearance in having two smoke-pipes instead of four. The machinery of the two is almost exactly alike, the principal difference being in the boilers. Of these, six are 15 feet 9 inches in diameter and 20 feet long, and two are 15 feet 3 inches in diameter and 18 feet long; and they contain 1456 square feet of grate and 48,194 square feet of heating surface. There are in addition two auxiliary boilers with 64 square feet of grate and 1952 square feet of heating surface; but they were not used on the main engines during the official trial. The following are the principal trial data:

Mean draft, feet and inches	22–6
Displacement, tons	7287
Speed, knots	23.073
I.H.P., main engines	20,366
I.H.P., main engines and auxiliaries	20,812
I.H.P., per square foot of grate	14.29
Steam-pressure at boilers, pounds	150.32
Air-pressure, in inches of water	0.998

	Centre.	Starb.	Port.
Revolutions per minute	132.19	131.95	133.1
Piston speed in feet, per minute	925.33	923.65	931.7
Screws, diameter, feet	14.0	15.0	15.0
Screws, pitch (mean), feet	21.5	22.0	22.0
Immersion of top of blades, feet	9.12	5.46	5.46

L. S. VAN DUZER,
Lieutenant U.S.N.

SERVICE SALAD.

A Christmas off Cape Horn.

On the 28th of October, 18—, I sailed from San Francisco for New York in the sailing sloop of war S——. The sailing voyage about the Horn is an unusual one for men-of-war in these days of steam, Suez Canals, and coasting cruises through the convenient Straits of Magellan. The S—— was one of those stanch, well-built sailing sloops of a past age, dry as a bone in the worst sea, weatherly, manageable, and fast. She had the comfortable faculty of slipping along mysteriously in a calm or light breeze, which made up for any remissness in a fresh one.

We anticipated a long and tedious voyage, and the question of the food-supply was an all important one. We were short-handed and the ship carried an unusual number of water-tanks, so that there was no fear on that score. All the messes laid in an abundant supply of stores, and the ship was provisioned for a year. The experienced officer who had been chosen caterer abundantly provided for the officers' mess in the usual essentials, and we easily obtained the unusual privilege of carrying a small quantity of live stock. This consisted of half a dozen sheep and a dozen or more pigs, which were somewhat inhospitably provided with quarters in the open air on the upper deck. The genial caterer omitted, however, one thing essential to their welfare and our comfort. He entirely neglected to provide any hay or straw for their sustenance. The pigs throve on the abundance of slops bestowed on them, and we managed to satisfy the sheep with the straw in which the wines were packed. They furnished us with many an excellent dinner of mutton, but the pigs succumbed one by one to influenza brought on by exposure, rainy weather in the tropics, and subsequent cold in higher southern latitudes.

It was a source of great amusement to see the little herd of live stock tumbling and staggering about the slippery decks during the morning, when, their grating pens being torn down to cleanse them, they were allowed the freedom of the upper deck. Our last pig, which had become quite a pet among the men, finally lost his life on such an occasion. Being somewhat inquisitive, he had raised himself up with his fore legs on the covering of the fore-hatch, and thrusting his snout over it, was peeking down into the ship, when some careless wag exclaimed "s-i-c!" clapping his hands at the same time. Piggy, frightened at this, gave a sudden leap, sprung over the hatch, and tumbled down two decks to the orlop, twenty feet below. Some of his devoted admirers rescued him, but he was at his last gasp, and, in order to utilize him for the messes, he was quickly killed.

We soon ran down the northern latitude, were wafted across the doldrums by favorable breezes, and, under a strong west wind, found ourselves at the end of six weeks in the "southern 40's," far west of the Cape. There we struck the "butt end" of a southwest gale, cold and furious, before which we scudded eastward. The sea, rolling about the entire globe before the gale, was something tremendous. The waves were longer than our little sloop, and, standing on the upper deck, no breath of wind was felt, although it piped merrily aloft. Under double-reefed topsails we rolled along, favored by twenty hours of daylight and secure in the weatherly qualities of the good old sun.

Our last sheep was killed long before

Christmas, but a joint, hung in the mizzen rigging, was preserved in the dry, cold air, and reserved for a Christmas feast.

In addition to the live stock already mentioned we had laid in the usual supply of chickens, geese, and turkeys. Two turkeys were all that remained of this outlay, and great store was set by them. One was claimed by the officer's mess, the other belonged to the midshipmen. They were, it must be confessed, sorry-looking fowls. One fine bracing morning, when most of the officers were on deck enjoying the freshness of the gale and the midshipmen, sextant in hand, were trying to bring the sun down to the shifting horizon, these nearly featherless bipeds were straying about the decks, the subject of much ridicule and wit from the watch on duty. One of them, as if impatient of so much criticism, suddenly gave himself a preliminary shake or two, and then, to the surprise of all, flew over the low bulwarks, and was seen struggling in the foaming waves astern. No boat could be lowered in such a sea, and the most impartial judge would have been at a loss to decide to which mess the survivor belonged, had it not been for the ready wit of the first lieutenant. He instantly cried, as the luckless fowl disappeared over the rail, "There goes the steerage turkey!" This fiat settled the matter, and the midshipmen dared not claim the surviving bird as theirs.

Christmas-day was rainy and cold. Man is, however, independent of circumstances, and the sailor readily adapts himself to the surroundings, so we consoled ourselves that we were rounding the horn and thought of the dear ones at home in the other hemisphere.

At the usual hour the men gathered about their mess-tables, provided with a liberal supply of savory "lob-scouse," ingeniously prepared by baking together soaked crackers, bits of beef, pork, and vegetables, of steaming "plum-duff," the sailor's name for bread pudding and raisins, canned fruit, and a bottle of beer to each man, the gift of the officers' mess.

An hour later the officers were seated about the long table in the ward-room prepared to enjoy the Christmas dinner, although far from home and friends with whom it would have been a privilege to share it. The captain, as an honored guest, occupied the head of the table, and all were present, except the ever-absent officer of the watch, and the junior surgeon ("little pills"). The latter had been invited to dine in the steerage, and had just shown us the bill of fare designed by the midshipmen. This work of art was headed by a sketch of the ship in a stormy sea, with a forlorn looking fowl flying over the waves, and below it were the words, "Ye steerage turkey." In this delicate sarcasm they took their revenge on their superiors.

Chang, our Chinese steward, had done wonders in the matter of dinner. Soup was tabooed, as nothing short of a miracle would have enabled the most skillful navigator to convey it from the galley, a hundred feet away, along two decks to the ward-room, nor would it have been a delightful task to eat it. But the table glistened with well-polished silver, substantial sea crockery, kept in place by the wooden "fiddles," and cautiously guarded glassware. There was the roast turkey, crisp and tender, the smoking mutton joint, a succulent ham, and a lump of corned beef put up originally in Chicago, potatoes and vegetables so cunningly prepared that they seemed fresher from the can than from the garden. There was the usual plum pudding, Yankee pie, nuts, raisins, figs, and with it all sparkling California hock, mellow sherry, and dry Roederer.

Friends at home were remembered, the latest ship incidents or "galley yarns" related, the probable length of the voyage discussed, and the standing jokes laughed at. With the nuts and wine the captain proposed the usual Saturday night toast at sea, "Sweethearts and Wives," one which all heartily joined in, although there was a majority who claimed it should be "wives and sweethearts." Other reminders of friends at home were now brought to light. One was given a book, another some toilet article for his room, another a piece of jewelry, and there were even letters produced dated two months before.

These had been hidden until the proper time in the rooms of brother officers, who had been taken into the confidence of the givers, and were all the more welcome because unexpected and rare.

Thus the long twilight evening passed merrily away, and, although I have spent many Christmases at sea, I shall longest remember this one, with the ship snugly rolling before a southwest gale, Cape Horn on our lee quarter, and our course shaped to the northward, bound for home.

FLETCHER STEWART BASSETT.

BALLADS OF BATTLES.

(*From the New York Sun.*)

The Battle-field.

ONCE this soft turf, this rivulet's sands,
Were trampled by a hurrying crowd,
And fiery hearts and armed hands
Encountered in the battle cloud.

Ah! never shall the land forget
How gushed the life blood of her brave—
Gushed, warm with hope and courage yet,
Upon the soil they fought to save.

Now all is calm and fresh and still;
Alone the chirp of flitting bird,
And talk of children on the hill,
And bell of wandering kine are heard.
No solemn host goes trailing by
The black-mouthed gun and staggering wain;
Men start not at the battle cry—
Oh, be it never heard again!

Soon rested those who fought; but thou
Who minglest in the harder strife
For truths which men receive not now,
Thy warfare only ends with life.

A friendless warfare! lingering long
Through weary day and weary year;
A wild and many-weaponed throng
Hang on thy front, and flank, and rear.

Yet nerve thy spirit to the proof,
And blench not at thy chosen lot:
The timid good may stand aloof,
The sage may frown—yet faint thou not.
Nor heed the shaft too surely cast,
The foul and hissing bolt of scorn;
For with thy side shall dwell at last,
The victory of endurance born.

Truth, crushed to earth, shall rise again—
The eternal years of God are hers;
But Error, wounded, writhes in pain,
And dies among his worshipers.

Yes, though thou lie upon the dust,
When they who helped thee flee in fear,
Die full of hope and manly trust,
Like those who fell in battle here!

Another hand thy sword shall wield,
Another hand thy standard wave,
Till from the trumpet's mouth is pealed
The blast of triumph o'er thy grave.

WILLIAM CULLEN BRYANT.

The Charge of the Light Brigade at Balaklava.

HALF a league, half a league,
Half a league onward,
All in the valley of death
Rode the six hundred.
"Forward, the Light Brigade!
Charge for the guns!" he said:
Into the valley of death
Rode the six hundred.

"Forward, the Light Brigade!"
Was there a man dismayed?
Not though the soldier knew
Some one had blundered:
Theirs not to make reply,
Theirs not to reason why,
Theirs but to do and die,
Into the valley of death
Rode the six hundred.

Cannon to right of them,
Cannon to left of them,
Cannon in front of them
Volleyed and thundered;
Stormed at with shot and shell,
Boldly they rode and well;
Into the jaws of death,
Into the mouth of hell,
Rode the six hundred.

Flashed all their sabres bare,
Flashed as they turned in air,
Sabring the gunners there,

Charging an army, while
All the world wondered:
Plunged in the battery-smoke,
Right through he line they broke;
Cossack and Russian
Reeled from the sabre-stroke
Shattered and sundered.
Then they rode back, but not,
Not the six hundred.

Cannon to right of them,
Cannon to left of them,
Cannon behind them
Volleyed and thundered;
Stormed at with shot and shell,
While horse and hero fell,
Those that had fought so well
Came from the jaws of death
Back from the mouth of hell,
All that was left of them,
Left of six hundred.

When can their glory fade?
Oh, the wild charge they made!
All the world wondered.
Honor the charge they made!
Honor the Light Brigade,
Noble six hundred!

ALFRED TENNYSON.

Hohenlinden.

ON Linden, when the sun was low,
All bloodless lay the untrodden snow,
And dark as winter was the flow
Of Iser, rolling rapidly.

But Linden saw another sight
When the drum beat, at dead of night,
Commanding fires of death to light
The darkness of her scenery.

By torch and trumpet fast arrayed,
Each horseman drew his battle blade,
And furious every charger neighed
To join the dreadful revelry.

Then shook the hills with thunder riven;
Then rushed the steeds to battle driven;
And, louder than the bolts of heaven,
Far flashed the red artillery.

But redder yet those fires shall glow,
On Linden's hills of crimsoned snow,
And bloodier yet shall be the flow
Of Iser, rolling rapidly.

'Tis morn; but scarce yon level sun
Can pierce the war clouds, rolling dun,
Where furious Frank and fiery Hun
Shout in their sulphurous canopy.

The combat deepens. On, ye brave,
Who rush to glory or the grave!
Wave, Munich! all thy banners wave,
And charge with all thy chivalry!

Few, few shall part where many meet!
The snow shall be their winding sheet,
And every turf beneath their feet
Shall be a soldier's sepulchre.

THOMAS CAMPBELL.

High Tide at Gettysburg.

A cloud possessed the hollow field,
The gathering battle's smoky shield;
Athwart the gloom the lightning flashed,
And through the cloud some horsemen dashed,
And from the heights the thunder pealed.

Then, at the brief command of Lee,
Moved out that matchless infantry,
With Pickett leading grandly down,
To rush against the roaring crown
Of those dread heights of destiny.

Far heard above the angry guns,
A cry across the tumult runs:
The voice that rang through Shiloh's woods,
And Chickamauga's solitudes:
The fierce South cheering on her sons.

Ah, how the withering tempest blew
Against the front of Pettigru!
A khamsin wind that scorched and singed,
Like that infernal flame that fringed
The British squares at Waterloo!

A thousand fell where Kemper led;
A thousand died where Garnett bled;
In blinding flame and strangling smoke,
The remnant through the batteries broke,
And crossed the works with Armistead.

"Once more in Glory's van with me!"
Virginia cries to Tennessee:
"We two together, come what may,
Shall stand upon those works to-day!"
The reddest day in history.

Brave Tennessee! Reckless the way,
Virginia heard her comrade say,
"Close round this rent and riddled rag!"
What time she set her battle flag,
Amid the guns of Doubleday.

But who shall break the guards that wait,
Before the awful face of fate?
The tattered standards of the South
Were shriveled at the cannon's mouth,
And all her hopes were desolate.

In vain the Tennesseean set
His breast against the bayonet;
In vain Virginia charged and raged,
A tigress in her wrath uncaged,
Till all the hill was red and wet!

Above the bayonets mixed and crossed
Men saw a gray, gigantic ghost
Receding through the battle cloud,
And heard across the tempest loud
The death-cry of a nation lost!

The brave went down! Without disgrace
They leaped to ruin's red embrace;
They only heard fame's thunder wake,
And saw the dazzling sunburst break
In smiles on glory's bloody face!

They fell who lifted up a hand,
And bade the sun in heaven to stand;
They smote and fell who set the bars
Against the progress of the stars,
And stayed the march of Motherland!

They stood who saw the future come
On through the fight's delirium;
They smote and stood who held the hope
Of nations on that slippery slope,
Amid the cheers of Christendom!

God lives! He forged the iron will
That clutched and held that trembling hill!
God lives and reigns! He built and lent
The heights for Freedom's battlement,
Where floats her flag in triumph still!

Fold up the banners! Smelt the guns!
Love rules. Her gentler purpose runs.
A mighty mother turns in tears
The pages of her battle years,
Lamenting all her fallen sons!

WILL H. THOMPSON.

The Bivouac of the Dead.

The muffled drum's sad roll has beat
The soldier's last tattoo!
No more on life's parade shall meet
That brave and fallen few.
On Fame's eternal camping ground
Their silent tents are spread;
And Glory guards, with solemn round,
The bivouac of the dead.

No rumor of the foe's advance
Now swells upon the wind;
No troubled thought at midnight haunts
Of loved ones left behind;
No vision of the morrow's strife
The warrior's dream alarms,
No braying horn or screaming fife
At dawn shall call to arms.

Their shivered swords are red with rust,
Their pluméd heads are bowed;
Their haughty banner, trailed in dust,
Is now their martial shroud;
And plenteous funeral tears have washed
The red stains from each brow;
And the proud forms, by battle gashed,
Are free from anguish now.

The neighing troop, the flashing blade,
The bugle's stirring blast,
The charge, the dreadful cannonade,
The din and shout, are passed;
Nor war's wild note, nor glory's peal,
Shall thrill with fierce delight
Those breasts that never more may feel,
The rapture of the flight.

Like the fierce northern hurricane
That sweeps his great plateau,
Flushed with the triumph yet to gain,
Comes down the serried foe,
Who heard the thunder of the fray
Break o'er the field beneath,
Knew well the watchword of that day
Was victory or death.

Full many a norther's breath has swept
O'er Angostura's plain,
And long the pitying sky has wept
Above its moldered slain.
The raven's scream or eagle's flight,
Or shepherd's pensive lay,
Alone now wake each solemn height
That frowned o'er that dark fray.

Sons of the dark and bloody ground,
Ye must not slumber there,
Where stranger steps and tongues resound
Along the heedless air;
Your own proud land's heroic soil
Shall be your fitter grave;
She claims from war its richest spoil,
The ashes of her brave.

Thus 'neath their parent turf they rest,
Far from the gory field,
Born to a Spartan mother's breast
On many a bloody shield.
The sunshine of their native sky
Smiles sadly on them here,
And kindred eyes and hearts watch by
The hero's sepulchre.

Rest on, embalmed and sainted dead!
Dear as the blood ye gave,
No impious footstep here shall tread
The herbage of your grave.
Nor shall thy glory be forgot
While Fame her records keeps,
Or honor points the hallowed spot
Where Valor proudly sleeps.
Yon marble minstrel's voiceless stone
In deathless song shall tell,
When many a vanished year hath flown,
The story how ye fell;

Nor wreck, nor change, nor winter's flight,
Nor Time's remorseless doom,
Can dim one ray of holy light
That gilds your glorious tomb.

THEODORE O'HARA

The Poet's Revenge.

(*From The King's Jester.*)

"I've brought you a little thing of my own,"
The Poet meekly said;
The Editor uttered a ghastly groan,
And shook his massive head.

"'Tis small, but so precious," the Poet sighed;
The Editor groaned once more;
He thought to himself that the Poet lied,
As poets had done before.

The Poet continued, though fiercer still
Became the Editor's mien:
"If you will not use it, there's many will,
'Tis a packet of Pyle's Pearline."

Then the Editor understood the jest,
But vainly he tried to smile;
He knew that the present his wife liked best
Was Pearline made by Pyle.

MILITARY ORDER OF THE LOYAL LEGION OF THE UNITED STATES.

Companions of the Loyal Legion are invited to contribute to this department. News of the Commanderies is always welcome, but suggestions likely to inure to the benefit of the whole organization are of higher value, and therefore particularly desired. The pages of the Loyal Legion Department of the "United Service" are always at the service of members of the Order desiring to discuss matters of general interest to their comrades of the Military Order of the Loyal Legion.

Pennsylvania Commandery.

Stated meeting held February 6, 1895.

To THE FIRST CLASS.—Lieutenant **Edwin W. Bausman**, U.S.V.; Captain **Lyman T. Borchers**, U.S.V.; Captain **Benjamin G. Cooper**, U.S.V.; Lieutenant **Edward F. Curtis**, U.S.V.; Captain **Thomas B. A. David**, U.S.V.; Lieutenant **George W. Eachus**, U.S.V.; Lieutenant-Colonel **Harlan Ganse**, U.S.V.; Naval-Constructor **John F. Hanscom**, U.S.N.; Acting Assistant-Surgeon **Samuel Holman**, U.S.N.; Lieutenant **John Lee**, U.S.V.; Lieutenant **William F. Lutje**, U.S.V.; Lieutenant-Colonel **John Murphy**, U.S.V.; Lieutenant **Leander W. Munhall**, U.S.V.; Lieutenant **Maxwell K. Moorhead**, U.S.V.; Captain **Robert J. Phipps**, U.S.V.; Lieutenant **William H. Rose**, U.S.V.; Lieutenant **William J. Smith**, U.S.V.; Lieutenant **William A. Stone**, U.S.V.; Lieutenant **James Stephenson**, U.S.V.; Chief-Engineer **Nathan T. Towne**, U.S.N.; Lieutenant **Andrew G. Wood**, U.S.V.

To THE FIRST CLASS (in succession from deceased Companions).—**Martin E. Benson, Charles P. Lineaweaver.**

To THE FIRST CLASS (by inheritance from deceased Companions).—**Luther C. Darte, James W. Oakford.**

To THE SECOND CLASS.—**Charles G. Carter, John R. Pitman, William H. Schoonmaker, George F. R. Stocker, John G. Whitesides, Kane S. Green.**

New York Commandery.

Stated meeting held February 6, 1895.

To THE FIRST CLASS.—Passed Assistant-Surgeon **Lewis S. Pilcher**, late U.S.N.; Second Lieutenant **William H. Bradshaw**, U.S.V.; Chief-Engineer **George Cowie, Jr.**, U.S.N.; Chaplain **Norman Fox**, U.S.V.; Captain **Charles A. Walker**, U.S.V.; First Lieutenant **Mark D. Wilber**, U.S.V.

To THE FIRST CLASS (by inheritance from deceased officer).—**Mr. Albert Delafield, Mr. Frank M. Freeman**, Captain **Louis J. Gulick**, U.S.M.C. (retired), **Mr. Abbot Treadwell.**

To THE SECOND CLASS.—**Mr. Arthur H. Cilley, Mr. Charles Curie, Jr., Mr. Harris K. Masters.**

District of Columbia Commandery.

Stated meeting held February 6, 1895.

To THE FIRST CLASS.—Brevet Lieutenant-Colonel **Joseph Mansfield Brown**, U.S.V.; Commander **French Ensor Chadwick**, U.S.N.; Brevet Brigadier-General **John Sanford Mason**, U.S.A.; Captain **William Rudolph Steinmetz**, U.S.A.; Captain **Folliot Augustus Whitney**, U.S.A.

To THE SECOND CLASS.—**Mr. Elijah Watt Sells.**

The resignation of membership in the Order by Companion Rear-Admiral **John Lorimer Worden**, U.S.N., Insignia No. 220, was accepted by unanimous vote.

Illinois Commandery.

Stated meeting held January 10, 1895.

To THE FIRST CLASS.—Colonel **Freeman Conner**, Captain **George H. Palmer**, Colonel **Richard S. Thompson.**

To THE FIRST CLASS (by inheritance).—Mr. **Ralph L. Earnest.**

Missouri Commandery.

Stated meeting held February 2, 1895.

To THE FIRST CLASS.—Brevet Brigadier-General **Frank Askew**, U.S.V.; Lieutenant **Oscar M. Spellman**, U.S.V.

Michigan Commandery.

Stated meeting held February 7, 1895.

To THE FIRST CLASS.—Captain **Harrison H. Wheeler**, U.S.V.; Captain **Jonathan B. Tuttle**, U.S.V.

Wisconsin Commandery.

Stated meeting held Febuary 6, 1895.

To THE FIRST CLASS.—Captain **Allen R. Bushnell**, U.S.V.; Lieutenant **William E. Trowbridge**, U.S.V.

To THE SECOND CLASS.—**Chandler B. Chapman.**

Indiana Commandery.

MEMBERSHIP REPORT OF INDIANA COMMANDERY, FEBRUARY 1, 1895.

First class original	205
First class in succession	2
First class by inheritance	18
Total first class	225
Second class	14
Third class	1
Total membership	240
Resident members	79
Non-resident members	161
Total	240

Colorado Commandery.

Stated meeting held February 12, 1895.

To THE FIRST CLASS.—Captain **Howard C. Chapin**, U.S.V.; Captain **Benjamin K. Kimberly**, U.S.V.

To THE FIRST CLASS (by inheritance).—**Julius H. Clark.**

To THE SECOND CLASS.—**George P. Robinson.**

TRANSFERS.

Pennsylvania Commandery.

Major **Alfred Ely Lewis** and Acting Master **William Wright**, U.S.N., to New York Commandery; Captain **Alfred Reynolds**, U.S.A., to Kansas Commandery; Commander **Charles W. Tracy**, U.S.N., to Massachusetts Commandery.

New York Commandery.

Captain **Henry R. Anderson**, U.S.V., to District of Columbia Commandery; Captain **Alexander M. Wetherill**, U.S.A., to Ohio Commandery; Major General **Oliver O. Howard**, U.S.A., to Vermont Commandery.

Massachusetts Commandery.

Lieutenant **Harry Leroy Hawthorne**, U.S.A., to New York Commandery.

District of Columbia Commandery.

Chief-Engineer **Alexander Henderson**, U.S.N., to New York Commandery; Colonel **M. I. Ludington**, U.S.A., to Illinois Commandery; Lieutenant **J. T. Conrad**, U.S.A., to Missouri Commandery.

California Commandery.

Colonel **George K. Brady**, to Illinois Commandery.

Wisconsin Commandery.

Captain **Louis N. Gondon**, to Nebraska Commandery; Captain **John L. Mitchell** to District of Columbia Commandery.

Iowa Commandery.

Major **Edwin P. Walker** to Illinois Commandery.

Kansas Commandery.

Captain **Charles B. Thompson**, U.S.A., to New York Commandery.